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And don't slam the door behind you! When leaving one job for another, make sure you smile on the way out. A survey by recruitment firm Robert Half International found that the behavior of employees who leave on bad terms of their own making (such as inadequate notice) could be haunted by such actions when looking for other jobs in the future. Robert Half states that wise departing workers should practice good exit etiquette with ample notice and an offer to train their successors. Employees should also recognize that in today's world, they are likely to reencounter old bosses. Sort of like seeing your ex in a local bar.

Quotable

"Most executives still believe we need a mainframe center. But they're also convinced that because of the many success stories, mid-range systems fit in very well with the company plans."

RICHARD DEMLER
COLGATE PALMOLIVE

On attitudes toward downsizing. See story page 1.

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EXECUTIVE BRIEFING

■ The political implications of downsizing systems can range from difficult to devastating in an organization. Firms moving to smaller platforms are grappling with the resistance of data center professionals to giving up the glass house, and this means hidden costs that can erode projected downsizing savings. Page 1. However, the trend continues to roll as Banc One announced a five-year road map to cooperative processing. Page 10. In the face of such changes, Chase Manhattan information systems chief Elaine Bond urges colleagues to retrain mainframe experts and form IS project teams that encompass a wide range of technical skills. Page 70.

■ An ambitious image processing system was disclosed by Northwest Airlines. The FileNet system running on Sun workstations will enable Northwest to audit 260,000 used tickets daily to help determine revenue and improve pricing decisions. Northwest officials say the Passenger Revenue Accounting system should pay for itself in just six months. Page 8.

■ Job within IS departments are expanding to include finance, human resources and education. Firms such as Aetna, Gillette and Connecticut Mutual Life are tapping managers with both technical and business skills to broaden the definition of an IS employee. Page 18.

■ Warner-Lambert's IS department views its data center as a business that competes with both outsourcing vendors and departmental computing. Success is defined as better service at a lower price, and chargeback rates have decreased in the past four years. Page 63.

■ Look for more business partnerships between outsourcing firms and organizations during the next decade, says Andersen Consulting's top outsourcing authority. In return for "value-added" services capitalizing on their specific business knowledge, outsourcing companies will take on a bigger piece of the client's financial action. Page 77.

■ On-site this week: H. P. Hood hopes to milk the benefits of smaller platforms as it undertakes a three-year effort to convert applications from a 4381 to AS/400s. In the interim, the Boston-based dairy products firm is outsourcing its data processing to its parent company's IS utility, Agway Data Services. Page 33. If you're selling computer-aided software engineering tools and services, what tools can you use to help develop them? KPMG Peat Marwick thinks it has found the answer in Brightstar-Roberts' Hyperpad, an MS-DOS-based, object-oriented programming tool that helped the consultants develop their AR/Platform CASE package. Page 65.

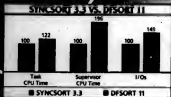
■ You can glean much more from consultants than what you've specifically hired them to tell you. IS executives frequently get feedback on activities outside the bounds of the immediate project and learn a lot through casual conversations. Page 71.



Fuzzled over connecting your LANs? Network integrators can help. Page 55.



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Noorda key in Lotus/Novell deal

BY JIM NASH
CW STAFF

It was Lotus Development Corp.'s Jim Manzi who spoke first last Monday's Lotus/Novell press conference, but it was Noorda, Inc.'s Ray Noorda who had the last word.

On paper, Manzi's Lotus is the first among equals in the two companies' proposed merger, but Noorda clearly took a well-practiced leading role as reporters and analysts from the U.S. and Europe tried to dissect the deal.

As the dust caused by the previous week's surprise announcement of the proposed merger begins to settle, it became apparent that Noorda intends to have a strong role in the new organization.

His presence may be crucial in convincing Novell stockholders to vote in favor of the merger, despite their apparent initial negative reaction (see story page B1). In an announcement later in the week, Novell and Lotus revealed that a class-action suit had been filed on behalf of Novell stockholders in a bid to block the merger.

While Noorda could retire and retain his stock, some analysts were pessimistic about how Novell would perform if he left. Alvin Brady, an analyst at Hambrecht & Quist, Inc., said that for that reason, Noorda would probably want to protect his investment by staying on board, at least for the short term.

For financial and legal reasons, he is likely to stay on board at least six months after the merger is approved. The Securities and Exchange Commission restricts principals from taking the money and running for six months after a merger, according to Peter Troop, investor relations manager for Novell. Beyond that, for the deal to qualify for the tax breaks of a merger, shareholders with 10% or more stock must hold their stock for 30 days after the first combined financial quarter. Noorda owns 12.6% of Novell's stock and would own 8.3% of Lotus/Novell stock.

Noorda, who will be vice-chairman of the merged company and chief executive officer of the Novell subsidiary, said he asked Manzi to be chairman of

Lotus/Novell. He explained that in that position, Manzi would deal directly with investors, leaving Noorda free to concentrate on sales and operations of the new firm.

"A lot of people think the new company will be run... by an inside man," said David Bayler, an analyst at Montgomery Securities in San Francisco. Nevertheless, it may be Lotus that has most to gain from the union.

"We'll be able to do an extraordinary job of exploiting Netware and fine-tuning our products to Netware," said Frank Moss, vice-president of the newly formed Lotus Consulting Group. He also said that Novell and Lotus "can be an influencing factor on the commercial network offerings in the Unix environment."

In the networking arena, however, Netware may not necessarily be on the agenda of all customers. "The merger with Novell doesn't mean that we won't have separate businesses based on our judgment of what the customer needs," Moss said.

One judgment that will have to be made involves Microsoft

Corp.'s OS/2 and LAN Manager on network servers, a challenge to Novell's dominance of the local-area network market. "It's going to be an involved set of discussions [with Novell] to determine where we will go," Moss said. "However, we are positioning OS/2 as an important environment."

Although history indicates that even mergers of equals gen-



Photo by Cindy Clarke
Novell's Noorda plans to play a strong role in the merged firm

erally result in a dominant partner imposing its will, Moss said no quick changes are in the works. "I don't think we'll start to do a twist on our respective corporate strategies in the near term," he said. "We have each made subtle decisions around alliances and support, and [we can't] walk into a door and say 'let's stop doing this or do something else.'"

Senior Editor Patricia Keefe contributed to this report.

Merger expected to bolster user service

ANALYSIS

BY PATRICIA KEEFE
CW STAFF

As the industry struggles to find the synergy in the pending merger between network software kingpin Novell, Inc. and spreadsheet giant Lotus Development Corp., it is clear that the early benefits will center on better service and support.

For Lotus users who are frustrated with constantly busy support lines, this should be good news. It will enable Lotus to transform its newfound pledge of service from words into action at lot soon.

The marriage of these two companies brings together diverse distribution and support strategies that nonetheless will mesh well, each filling a gap for the other. "Service and consulting are the sweet spots of this merger," said Lotus Vice-President Frank Moss, who is in charge of the new consulting service group and is acting head of the network applications and

systems division.

If all goes well, the merger is expected to be finalized in July, shortly after the debut of two Lotus service programs that stand to benefit greatly from the expertise found at Novell's Pro-

fect Corp., which is also Novell's neighbor.

The three firms each hold an estimated 60% or more of their respective markets, which Moss said will be leveraged to drive application and networking standards in the emerging client/server market. "Imagine if you are the PC applications and PC network leaders and you go in and offer a consulting service on top of that," he said. "What if you could call one number and

Last week, Microsoft unveiled a consulting services unit of its own, to be headed by a former Ernst & Young executive, Robert McDowell. It will compete with The Lotus Consulting Services Group, which will focus on custom programming and is slated to debut in June.

Networked Notes ahead
Lotus is also on the verge of launching the Lotus Notes Alliance Partner Program, under which Lotus will work with systems integrators and financial service providers such as Price Waterhouse to help Notes users get networked and provide extended service and consulting support.

"In selling these services, we have an awful lot to learn from Novell," Moss said. The biggest difficulty for Lotus, according to Moss, is that this is a different sell from a shrink-wrap software pitch. Networking, of course, necessitates a system and a consulting sell.

Lotus currently has a sales force calling on the Fortune 100 and directing them to its products and distributors. In a consulting sell, the salespeople concentrate on selling the company and the concept, Moss said. "It's all new for us, and it's going to take a while to build."



vo. Utah, headquarters and among its value-added reseller channel. Support will be further bolstered by plans to combine this service portfolio with similar programs at Lotus ally Wordper-

fect Corp. on three product lines."

It appears that Lotus intends to use that same market clout to compete with rival Microsoft Corp. in the hot service sphere.

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IBM outlines SAA timetable

BY ROSEMARY HAMILTON
OF STAFF

IBM provided a two-year timetable last week for the delivery of the most simple pieces of its distributed database strategy — access capabilities to its four major database systems.

On the surface, that seems like a tiny accomplishment, given that distributed databases have been talked about for years. But a closer look indicates that IBM customers will soon be handed the initial tools to take the journey to distributed databases, which most observers, including IBM, say will take years.

A DB/2-to-SQL/DS access capability is scheduled to be shipped to early support customers by year's end, said Norris van den Berg, a manager of strategy and market planning for IBM

software products. That is slated to be followed by access tools for the OS/400 to communicate with the mainframe database in 1991.

Currently, a DB/2-to-DB/2 access capability is available with the newest release of this DBMS, as is a similar tool for SQL/DS-to-SQL/DS access.

Beyond the SAA links, IBM plans to bring this same access capability to AIX, IBM's Unix environment, although not in the near future. It would be based on an AIX relational database management system that is reportedly under development at IBM.

Information systems managers interviewed last week indicated that this slow evolution poses no problem. They also are grappling with the distributed database concept and said they do not expect full implementation

for some time.

"These are major architectural decisions," said John Wood, computer networks director at the Royal Bank of Canada.

"Maybe by the year 2000, it will be a great thing."

According to van den Berg, there are many more functions, far more complex than access capabilities, that are just now being conceived at the Santa Teresa Laboratory in San Jose, Calif., where IBM database development is performed. These future tools, which would handle such systemwide functions as security, recovery backup and data integrity, will be delivered over the

next several years, he said.

Eventually, users will be able to access data transparently from any of the four database participants in IBM's Systems Application Architecture (SAA) family. These include DB2, which operates under MVS; SQL/DS, the RDBMS for the VM operating system; and the database managers in the OS/400 and OS/2 Extended Edition environments.

Two users contacted last week are still in a test phase with the DB/2 distributed capability, which was introduced in the fall of 1989, and said it was too early to rate its performance.

Like the DB/2 tool, the yet-to-be-released ones will provide both read access and update capabilities to the different data-

bases, van den Berg said.

All the databases are governed by IBM SQL standards, have been implemented differently on each hardware platform. As a result, users must write access code to communicate to the different databases.

"Basically, we'll have to write special access code, like we have to get to multiple DBMSs," said Steven Laino, database manager at Depository Trust Co. in New York.

But even this level of functionality — spanning the four SAA databases and including AIX — is a far cry from fully distributed database environment.

"Truly distributed" would involve a PC application that would be able to issue SQL statements, each of which would access a different remote database, said Paul Hensinger, chief technology officer of Computer Task Group. "With that as the context, we are still three-plus years away."

Midrange

CONTINUED FROM PAGE 1

many access systems, midrange systems fit in very well with the company plans."

That conviction prompted Demter to expand his data center's role by offering "support" services, such as maintenance and support of Digital Equipment Corp. minicomputers from some of Colgate's individual business units.

The days of old mainframe programming, when you stayed in the data center and let them come to you, are gone," he noted. "A lot of departments and business units are putting in their own systems now and asking, 'What do we need you for? We're waking up to that.'"

Industry consultants who specialize in migrating larger systems to the Application System/400 platform said political concerns often overshadow cost issues when an organization begins grappling with migration.

"Computer professionals tend to become emotionally attached to technology they know and often cannot rationally evaluate alternatives," said David Andrews, president of Cheslake, Conn.-based ADM, Inc.

At Atlanta-based Georgia-Pacific Co., which is moving off an IBM mainframe to networked AS/400s, "the most difficult transition was for the data center professional rather than the users," recalled Paul Pavloff, senior director of information resources. "Those who grew up in the mainframe environment had to learn to think differently for these newer platforms."

When Sara Lee Corp. decided to move its meat company divisions onto IBM mainframes and AS/400 machines, Steven Hagg said he knew that despite con-

selling economic reasons for the switch, he would have an uncomfortable political situation. The mainframe enthusiasts were ready to defend their glass house; the midrange faithful were ready to pitch a few rocks.

"It has been difficult," sighed Hagg, corporate director of systems at Arco Chemical Co. in Philadelphia, the corporate director to phase out two IBM mainframes in favor of networked AS/400s by March 1991 was based on the desire to save money, shrink the IS group and establish a flexible application development environment.

In the Hillshire Farms division, Hagg said, Sara Lee decid-

ed five years will be "in excess of a million dollars," Hagg said.

Yet cost savings are not always synonymous with a move to smaller systems, cautioned Ron Cipolla, an AS/400 consultant and president of Kentech Systems in Mansfield, Mass.

At Arco Chemical Co. in Philadelphia, the corporate director to phase out two IBM mainframes in favor of networked AS/400s by March 1991 was based on the desire to save money, shrink the IS group and establish a flexible application development environment.



Van den Berg sees access capabilities by year's end

Florida real estate dispute lands AS/400 sale in court

BY MARYFRAN JOHNSON
OF STAFF

MIAMI — IBM and a Michigan-based software company are the targets of both a lawsuit and the fury of some 7,500 real estate agents here in Dade County.

At issue is a real-time multiple listing service application intended to give agents a state-of-the-art regional database of available houses. Instead, realtors have charged, the \$1.5 million system was installed six months late, riddled with bugs, difficult to access and peppered with mistakes.

The I/Net Real Estate System, from I/Net in Kalamazoo, Mich., runs on an IBM Application System/400 midrange computer at the Dade County Multiple Listing Service. "But due to having big trouble making this system work," said Joe Parker, a Miami real estate agent affiliated with Coldwell Banker Real Estate Group, Inc. "The system is an embarrassment."

The Miami Board of Realtors, one of four real estate boards that own the service, filed suit in Dade Circuit Court in late March against IBM, I/Net and IBM Credit Corp., asking for compensatory and punitive damages.

IBM declined to tell its side of the story. "With the matter in litigation now, it would not be appropriate for us to respond," said spokesman Dallas Booth in Atlanta. Several sources said the last suggestion that IBM made to the listing service to solve the problem was "to tell another \$700,000 AS/400 Model B70."

"This has put many agents out of business," said Sydney

Garten, executive vice-president of the Dade County Multiple Listing Board of Realtors. "People go a full day and can't get into the system."

The original idea, Garten said, was to develop a system that the four real estate boards would own. Used in November, the system was contracted with Research Corp. in McLean, Va., for a computerized listing service.

Complaints about the I/Net software range from sluggish system searches, taking up to 30 minutes, to incomplete and erroneous information. Especially annoying, several users said, is the system's five-second polling function, which keeps asking users during a search if they know what they are looking for.

If it takes five seconds for a computer that was not suitable for this purpose, they should not have strung us along," said Ben Henry, an agent affiliated with the Jeanne Baker real estate agency.

Stephen Markee, chief executive officer of I/Net, agreed that the matter had been "frustrating for everybody involved." Dade County was only the third installation for I/Net's real estate system, and the company is primarily a research and development firm focused on digital imaging systems, he added.

The major technical problem apparently revolves around connectivity to the AS/400. I/Net's original contract called for an application capable of serving 144 users at one time or dial-in mode. But at the real estate boards' insistence, that access was expanded to 175 users, Markee said.

Economic conversion

One analysis of the cost for a small installation of a midrange system gives the edge to the AS/400

Typical number of personnel

IBM AS/400 Model B90 IBM AS/400 Model B70 IBM AS/400 Model B50

Programming

Technical support

Hardware

Operations

Managerial and support

Source: ADM, Inc.

IBM AS/400 Model B70
Task 12,000,000

Cost (in thousands)

IBM AS/400 Model B90
Task 180,000

IBM AS/400 Model B50
Task 180,000

Software

Hardware

Peripherals

Cost of maintenance (5 years)

IBM AS/400 Model B70

IBM AS/400 Model B90

IBM AS/400 Model B50

IBM AS/400 Model B70

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NET/MASTER
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NEWS SHORTS

Amdahl trims prices

In step with IBM's price changes last month, Amdahl Corp. concurrently raised prices by 3% on its minimal configuration mainframes and lowered prices on storage. With the trade-off in pricing between memory and the rest of the mainframe, a "fully loaded box would be reduced by 10-plus percent," a spokesman said. While mainframe makers have been greatly discounting their wares for the last two years, these discounts are based on fluctuations in list prices. "Discounting is about 20% to 30% [off list] now," the spokesman said.

ISDN interface for workstations

An interface introduced last week by Rockwell International Corp.'s CMC subsidiary is said to enable Motorola, Inc. VMEbus-based minicomputers and workstations to communicate over a high-speed Integrated Services Digital Network (ISDN) connection. The CMC-1800 intelligent adapter is said to support both the U.S. version of the ISDN Primary Rate Interface, which defines up to 23.64 Kbit/sec. B channels, and the European version, which defines up to 30 such channels.

3Com ships servers

3Com Corp. began shipping its CS/2000 and CS/2100 communications servers last week. The servers support the Transmission Control Protocol/Internet Protocol (TCP/IP), Xerox Network Systems protocol and the International Standards Organization's Open Systems Interconnect. 3Com also announced that it is licensing Digital Equipment Corp.'s Local Area Transport (LAT) protocol. 3Com said the servers will support LAT and TCP/IP as the first quarter of 1991.

DCA strikes up partnerships

Digital Communications Associates, Inc. (DCA) last week announced agreements involving its Remote2 communications software with Equifax, Inc. and 4M Remote Systems, Inc. Remote2 controls the remote operation of personal computer applications. Equifax will combine Remote2 with its order-entry software for the insurance industry, while 4M will integrate DCA's software with its Rent to Own Management System for remote access and transfer of customer account information from franchisees to a rental company's corporate office.

McDonnell Douglas reorganizes

McDonnell Douglas Corp.'s Douglas Aircraft Division is shuffling its information systems executives in an effort to re-centralize IS efforts. Starting this month, executives in the IS group were changed to remove duplication of IS functions, a spokesman said last week. The reorganization follows a 1989 shift in IS structure that assigned similar IS functions to three of the company's business units. Heading up the revamped IS organization is Pauline Norblom.

Sparc catches on

Support for Sun Microsystems, Inc.'s Scalable Processor Architecture (Sparc) microprocessor design is increasing. Next Monday, the first Sparc chip specifically designed for embedded applications will arrive when Cypress Semiconductor Corp. delivers a 25-MHz version of the reduced instruction set computing (RISC) chip. In addition, Open Systems and LSI Logic Corp. will develop a Sparc-compatible workstation, using the Sparc RISC chip set recently announced by LSI.

Xerox goes for Tariff 12

Xerox Corp., one of the world's largest corporations with \$17.6 billion in revenue, has joined the ranks of AT&T Tariff 12 customers. Under the terms of a \$121 million contract signed last week, AT&T will supply virtually all of Xerox's domestic interstate and international long-distance services, the carrier said. AT&T said it plans to set up a dedicated network management center in Chicago to manage network services for Xerox.

More news shorts on page 108

Imaging takes off at Northwest

BY ELLIS BOOKER

CHICAGO

Northwest Airlines last week disclosed details of a massive document image processing system believed to be the largest in the airline industry and arguably one of the largest uses of imaging technology by any company.

The system, which is now largely operational, will help Northwest audit the 260,000 tickets it processes each day and currently stores in cardboard boxes. It involves the integration of main-frame databases, optical character recognition and high-speed workstation technology.

From several vendors, according to Northwest officials. The system was described at the Association for Information and Image Management show last week in Chicago.

Dubbed PRA, for Passenger Revenue Accounting, the image management application will enable Northwest to record and analyze the 260,000 tickets its passengers hand over daily when they board Northwest airplanes. The massive project will cost "tens of millions" of dollars but is expected to pay for itself in just six months, according to Northwest officials.

Up until now, Northwest and

other airlines have relied on small statistical samples of the massive number of used ticket coupons they receive to determine their revenues. Northwest, for example, had tracked its ticket revenue in the past by sampling about 5% of the tickets, cal-

the-art application since last January.

Andersen selected Filenet Corp. in Costa Mesa, Calif., for the image storage component. Filenet's Optical Storage and Retrieval libraries are able to manage as many as 408 optical discs for a total on-line capacity of 40 million documents. Northwest said it will have six months of image data on-line at any one time.

Ticket auditors at Northwest will access the image data from 400 Sun Microsystems, Inc. workstations linked over an Ethernet.

Imaging technology is not new at Northwest, however. The nation's fourth-largest carrier recently disclosed the use of an application for its on-line technical documentation staff, which has begun receiving text and graphics documentation in computer-readable formats directly from aircraft manufacturers [CW, March 26].

Northwest's ticket auditing operation employs 600 people, "with 20 people who do nothing but search for tickets," Schwinn said. Under the tedious, paper-based method, ticket coupons were placed in endless rows of boxes lining the walls of Northwest's auditing department in Minneapolis and had to be ferreted out when disputes arose.



Northwest's old, paper-based system means selective shuffling through endless rows of boxes

culating an average and multiplying by the total number of tickets sold.

"It will let us account for every ticket sold or used," said Douglas J. Schwinn, senior director of information systems development at Northwest. Chicago's Andersen Consulting, which served as systems integrator on the PRA project, began exploring the potential for an imaging solution soon after Northwest's 1986 merger with Republic Airlines in Minneapolis.

Andersen began designing the application in June 1988 and has been installing the state-of-

D&B wins legal round in dispute with Dodge

BY NEIL MARGOLIS

CHICAGO

CHICAGO, Mass. — Despite scorching early episodes, the soap opera-like legal contest between software pioneer Frank Dodge and information giant Dun & Bradstreet Corp. last week appeared unlikely to be renewed as a Massachusetts superior court judge denied Dodge's claims against his former firm.

Judge Peter M. Lauriat dug to the center of a formidable pile of legal pleadings and two-way vituperation and emerged unpersuaded that Dodge could win against D&B in a full trial. Therefore, he refused to enjoin D&B from holding Dodge to the one-year noncompete contract that he went to court a month ago to void.

The ruling does not bar Dodge from seeking a full trial on the merits of his case. However, the scant likelihood of the case coming to trial before the non-

complete agreement runs its 12-month course and Lauriat's clear statement that "there is little likelihood of success on the issue of his alleged constructive discharge" could serve as an effective barrier.

The judge's position is exactly what Dun & Bradstreet's

issue has always been whether Dodge quit his executive job at the recently formed D&B subsidiary Dun & Bradstreet Software or was so positioned into leaving that his abrupt late-winter departure was actually a firing in disguise.

The distinction was a critical one for Dodge: Termination without cause was the sole exception to his otherwise binding noncompete agreement.

From the start, Dodge, who was unavailable for comment last week, has made no secret of

JUDGE PETER M. Lauriat dug to the center of a formidable pile of legal pleadings and two-way vituperation and emerged unpersuaded that Dodge could win against D&B in a full trial.

position has been all along: that Dodge's claims are entirely without merit," said Dennis Kellogg, one of the attorneys representing D&B as well as its corporate and individual co-defendants.

Flying fur and mounting paper notwithstanding, the point at

the fact that he wants to jump back into the business software arena and head his own company as quickly as possible.

"We disagree very strongly with Judge Lauriat's ruling, needless to say," a spokesman for Dodge said last week. "We are deciding whether to appeal."

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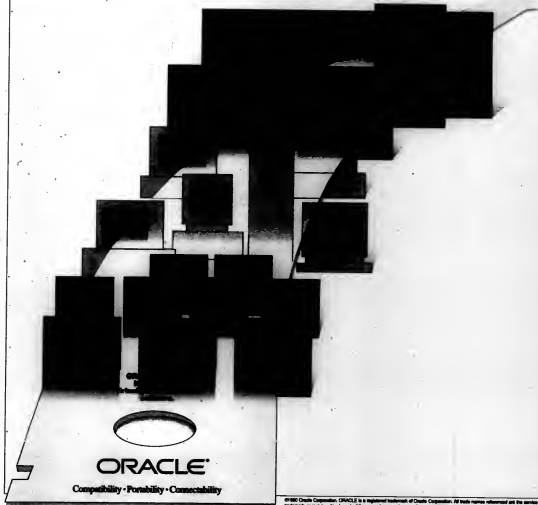
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Banc One writes down mainframe role

BY MITCH BETTS
CINCY

COLUMBUS, Ohio — Banc One Corp., a major bank holding company in the Midwest, last week approved a five-year plan for a cooperative processing architecture that sharply reduces the

role of mainframes in favor of network servers and 15,000 to 20,000 diskless personal computers.

"For a given application [now on the mainframe], we expect to offload 50% to 90% of the processing cycles to another platform," explained Terry Lowder,

vice-president of the company's information systems unit, Banc One Services Corp.

Lowder said the firm's decision was driven by the fact that mainframes were not keeping up with the tremendous growth in user demands for processing power. Banc One's mainframes

will be relegated to storing the database and handling high-volume transaction processing and batch processing, he said.

The desktop computers will be Intel Corp. 80386- and 80486-based systems with the IBM Micro Channel Architecture bus. They will be diskless for security reasons, although there are also cost and reliability benefits, Lowder said.

"From the user's perspective, it won't seem like a personal computer. It'll be a very smart terminal linked to the server, where the software resides," Lowder said.

The microcomputer operating system will be the forthcoming OS/2 Extended Edition Release 2. "We need the 32-bit addressing capability," Lowder explained.

Banc One's three-tier architecture requires the midrange systems to be equivalent in performance to the IBM Application System/400 and to support the LU6.2 peer-to-peer networking protocol. Mainframes will be compatible with the IBM Enterprise Systems Architecture 370 and run IBM's MVS/ESA operating system.

Standard features

In addition, Lowder said the new architecture features the following standard elements:

- Data communications, which will gradually migrate from IBM's Systems Network Architecture to IBM's implementation of Open Systems Interconnect, will probably be controlled by the Network management system.
- Local-area networks will be a mix of token-ring networks running at 4M and 16M bit/sec., although future applications such as check imaging will require the bandwidth of Fiber Distributed Data Interface networks.
- Wide-area networks will become all-digital, with very small-aperture terminals used to provide satellite links to remote locations.
- The firm will adopt IBM's Systems Application Architecture, although not necessarily all IBM software products, and IBM's forthcoming Systems Management Architecture for automating data center operations.
- Products that comply with IBM's AD/Cycle environment will be used for software engineering, including CGI Systems, Inc.'s Pachane and Andersen Consulting's Foundation.

Lowder said the cooperative processing architecture promises numerous cost and productivity benefits, including faster response times and the lower costs of smaller processors.

The price/performance ratio of desktop systems is dropping about 34% a year, "a much better curve than you see for the host," Lowder said. "We will continue to use mainframes, but they will have clearly defined roles and they will not be the controlling center of the universe."

Banc One's affiliated banks will get their first look at a system implementing the architecture later this year when the company rolls out an enhanced version of Strategic Banking System, a suite of banking applications first developed by Electronic Data Systems Corp.

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Unix unification talks unravel

Groups agree to disagree; no single standard in sight

BY AMY CORTESE
CW STAFF

Citing irreconcilable differences, AT&T, its Unix International advisory group and the Open Software Foundation (OSF) called it quits last week after six months of negotiations aimed at unifying the Unix development groups.

The breakdown in talks leaves little immediate hope for a single Unix standard as both groups advance with competing versions of the operating system.

"I'm disappointed," said Larry Sikos,

director of advanced technology at DSI Systems in New York. However, he added, "One standard would be beneficial, but business can survive without it."

The announcement followed weeks of deteriorating progress in the negotiations, which were begun by AT&T President Robert Kayner and Hewlett-Packard Co. Chief Executive Office John Young last summer. As with the 1988 discussion that centered on AT&T joining the newly formed OSF, which ended with the creation of Unix International, both sides conceded fundamental differences.

"It is the same essential bottom-line positions as in 1988," said Nina Lytton, publisher of "The Open Systems Advisor." "Unix International wants an industry-standard operating system based on [AT&T] Unix System V, and OSF wants more joint development of common technology, with no one vendor in control."

Among the many contentious issues, the sides came to a standoff over control of the proposed organization, with OSF insisting on a vendor-independent organization while AT&T was not ready to completely release its grip on Unix. A joint statement issued by the groups stressed that progress was made in cooperation; in subsequent press releases and interviews, however, the companies unleashed a volley of conflicting explanations.

Peter Cunningham, president of Unix International, said OSF pulled out of the talks on short notice after their members were "unable to reach a consensus."

OSF President David Terry disagreed. "We tried very hard to meet the very strong position Unix International had. There were certain perceptions going into discussions about what AT&T was prepared to give up in terms of ownership," he said. "But when it came down to OSF President David Terry's [AT&T's conditions] unacceptable."

Kayner steadfastly defended his position of an orderly transition of control. "I do not think it is important to move so fast," he said. "A few OSF companies had that as an absolute requirement; that didn't exist anywhere else."

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MCI to purchase Telecom USA

BY GARY H. ANTHERS
CW STAFF

WASHINGTON, D.C. — MCI Communications Corp., the nation's second-largest long-distance telephone company, announced last week that it will buy Telecom USA, Inc. for \$1.25 billion in cash. Telecom, based in Atlanta, is the country's fourth-largest long-distance provider, with service aimed mostly at small and medium-size cities in the Southeast and Midwest.

Analysts were divided about how the merger might affect competition in the hotly contested market for long-distance transmission of voice and data. Some said such linkups help consumers by putting price pressure on AT&T — which holds 70% of the \$55 billion market — while tending to loosen the bonds of regulation that hold AT&T.

Others said the continuing shrinkage of the pool of smaller suppliers tends to keep prices up while limiting innovation. "The big three are swallowing up the third tier [of long-distance companies], and we may end up with a three-firm oligopoly in this country," said James Smith, president of the Competitive Telecommunications Association, which represents Telecom and 120 smaller companies. Smith said the association will urge the Federal Communications Commission to move cautiously in completing the deregulation of AT&T.

MCI, with a 12% market share, had sales last year of \$4.5 billion. Telecom's revenue was \$713 million. Together the firms will employ almost 25,000 people.

Telecom operates its own digital fiber-optic network, with more than 3,000 miles of fiber in 11 states. The merger will give MCI some redundancy in coverage while extending its fiber-based services into new areas.

MCI will also gain access to innovative Telecom products such as a calling card that can be used for establishing conference calls, sending and receiving voice mail and retrieval of financial news, weather forecasts and stock quotes.

A spokeswoman for Telecom said the merger will have no immediate effect on either firm's products or services. The networks, which employ common types of equipment, will be merged, she said, and the firms will merge their billing and administrative systems in some way.

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Investment Type	Annual % Return			
	1980-81	1981-82	1982-83	1983-84
Domestic Stocks	12.1%	15.1%	10.1%	11.1%
Foreign Stocks	11.1%	14.1%	9.1%	10.1%
Bonds	10.1%	13.1%	8.1%	9.1%
Commodities	9.1%	12.1%	7.1%	8.1%
Real Estate	8.1%	11.1%	6.1%	7.1%
Art Collection	7.1%	10.1%	5.1%	6.1%
Private Equity	6.1%	9.1%	4.1%	5.1%
Other Assets	5.1%	8.1%	3.1%	4.1%
Total Portfolio	10.1%	13.1%	8.1%	9.1%

Quarterly Investment Returns



SYSTEM 2000

IBM tacks 'necessary but costly' OSI support on to MVS hosts

BY ELISABETH HORWITZ
OF STAFF

WHITE PLAINS, N.Y. — IBM last week announced the availability of Open Systems Interconnect support for its MVS hosts. The OSI Communications Subsystem for MVS began shipping on schedule last month, while the VM versions of the software will ship next month, or one month ahead of schedule, IBM said.

Originally announced in September 1988, the subsystem not only implements OSI protocols on IBM hosts but also enables applications "to get out of the host to an OSI network via VTAM and then NCP," said IBM product administrator Micka Purnell.

The product has drawn some criticism for being expensive — the MVS version starts at \$80,000 — and a potential drain on host processing resources.

However, it "does a necessary job" for multinational companies that need to link their IBM systems at home to the standards-conscious European business community, according to Norman Weiser, a senior analyst at Arthur D. Little, Inc.

One such company is World Bank of America, which hopes within a few years to use the Government Open Systems Interconnect Program version of OSI to connect a multivendor, globally distributed computing architecture, said senior research officer David Delmonte.

While holding off judgment until he has evaluated IBM's OSI system, Delmonte indicated that his company will wait until IBM and other leading vendor's OSI strategies mature, ensuring that their systems can truly interoperate.

The big question for the bank's future communications strategy is how IBM will implement OSI across all operating environments within its Systems Application

Architecture, Delmonte said.

"We're concerned with [Digital Equipment Corp.'s] commitment to OSI, although when you talk to them at the technical level, I see at least a generation of dual-protocol stacks," Delmonte said.

DEC's Decnet Phase V, due out this fall, will reportedly be completely OSI-compatible for the first four layers and will support dual-OSI and proprietary Decnet protocols for the top three layers.

Layer player

DEC has been shipping software to implement all seven layers of OSI, including applications such as the X.400 electronic mail standard, since May 1986, a company spokesman said.

However, the implementation was not fully OSI-compatible then, because the upper two layers of the OSI model were incomplete at the time. A number of OSI protocols, including X.400, have not become comparatively stable until recently. In addition to allowing IBM mainframe applications to communicate with other OSI-compliant systems, the subsystem allows OSI-compliant network management systems to send alerts and alarms to IBM's Netview, according to Purnell.

However, the subsystem currently supports network management protocols only as defined by the Manufacturing Automation Protocol Users Group, he added.

Those protocols, which were "frozen" more than two years ago, are not wholly compatible with the Common Management Information Service and Common Management Information Protocol that were recently finalized by the International Standards Organization, Purnell said. IBM plans to migrate the subsystem to current ISO protocols at an undisclosed date.

Street

CONTINUED FROM PAGE 1

the 1990s, a weary but wiser Wall Street is refocusing its efforts and looking to technology to absorb future up-and-downturns of the volatile industry.

"My belief is that the next run-up on Wall Street will be in technology, not people and paper," said David Sherr, vice-president of distributed infrastructure support at Shearson. Sherr said he believes that system capacities will expand to handle the increased volume he predicts will occur in a 1991-92 market upturn.

"That is why there are guys like me here, building the infrastructure. But it's not like money flows like water," he added.

Backpedaling

Indeed, in this highly cyclical business, the IS budget is often viewed as a pool of discretionary funds in a downturn. Wall Street's IS managers are increasingly finding themselves faced with shrinking staffs and budgets at a time when investing in technology is more important than ever.

Many of the systems in use on Wall Street today are batch systems, built and conceived in the 1970s and 1980s, with enhancements and individual systems added on over the years like Band-Aids. As the boundaries between the world's major financial centers melt away, new systems will be critical to support 24-hour global trading.

"Over the next five years, we have to move to 100% on-line. That is the major transition," said Rick Adam, chief information officer and a partner at Goldman, Sachs & Co. "We no longer have a batch cycle; we can't shut down for eight hours at night."

The situation facing many IS executives is compounded by the short-term mind-set characteristic of Wall Street,

which can often lead to a clash of cultures between IS and traders.

"What is needed is huge investments over a long period of time to change the infrastructure," said Alan Grody, president of First Interop Holdings Ltd., a strategic consulting firm in New York. "The problem is the user community doesn't feel any benefits until you are finished."

However, despite pressure to cut costs and a propensity for immediate results, forward-looking firms are investing in technology that will see them through the next decade.

"Management may be cutting back, but it's not killing this bud. They know this is the future," Sherr said.

Merrill Lynch has cut IS costs by \$200 million since 1986 through a series of measures, including consolidating data centers, outsourcing telecommunications operations and cutting staff. For the most part, however, it is continuing with a strategic plan conceived in 1987 before the stock market crash.

"You have to be very clear what your priorities are," said DuWayne Peterson, executive vice-president of operations/ systems and telecommunications at Merrill Lynch. "We are not doing the less important things."

For instance, the rollout of a branch automation system developed with ADP, Inc. has been slowed or suspended. At a rate of 10 to 15 branches a week, Merrill Lynch's network of retail branches would be fully automated by August, a year early. "When things get tough, the normal reaction would be to slow down," Peterson said. "This demonstrates a lot of money thinking on management's part."

Goldman Sachs is one of a handful of contrarian firms that continue to perform while Wall Street neighbors stumble. However, Adam said, "Our intention is to keep streamlining the business process."

Turning up the volume

Through automation, Adam said, his company has increased business volumes without adding personnel. "We have handled increased business volumes with little or no staff increases. We are now handling it through automation," he said. Traders and salespeople are now able to handle high volumes, and in some cases trades are 100% automated, never touching human hands.

Increasingly, Wall Street's IS managers talk of building infrastructures whose skeletons are worldwide networks that are fleshed out with systems based on emerging industry standards. While this infrastructure may take different forms at each firm, the common goals are flexibility to adapt to a changing business environment and to take advantage of new advances in technology.

"Our market is impossible to predict. We need a flexible architecture that can respond to industry or departmental change and allow change to incorporate new technology," Adam said.

"The challenge is to build an infrastructure and try to build as much flexibility into it so that it can absorb an upturn without adding people and paper," Peterson agreed.

These days, he said, "a surge in volume could come in a 24-hour period, yet you don't want equipment idle."



Goldman Sachs' Adam is pushing to get 100% on-line

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IS ranks opening up to nontraditional skills

Dual-discipline workers bring added knowledge and experience; can they climb to the top?

BY ALAN J. RYAN
CISWIRE

The once-narrow and predictable ranks of the information systems operation are broadening to include nontraditional jobs that require technical expertise. As the frequency of dual-discipline jobs increases, so does the possibility of nontraditional IS workers making their way to top IS posts.

Traditionally, the top IS seat has gone to someone who worked his way up the ladder through IS or, nearly as often in recent years, to someone making a lateral move from another functional area within the company.

However, Richard McGarry, chief financial officer of IS at Connecticut Mutual Life Insurance Co. in Hartford, Conn., said that does not necessarily have to be the case. McGarry is one of a growing number of IS employees who have skills in two disciplines. While his educational background is in finance and accounting, he has spent much of the last three years learning about computer systems, how they help his company and how they can be cost-justified.

"Being a good CPA requires you to have some understanding of computer systems," McGarry said. So, prior to moving to Connecticut Mutual, he made a point of becoming comfortable with personal computers, other computer technologies and the jargon associated with them.

Today, McGarry said, he is a technologist, but he has been able to maintain "a very strong user perspective and a very strong financial perspective" because his background is not in systems. He is also backed up by a staff of technologists.

"They are the people that make me successful," he said.

Though finance positions are probably the most common nontraditional careers in IS, there are others, according to Gary Mandrola. As the assistant vice-president of management services at Aetna Life & Casualty in Hartford, Conn., he should know. Large IS operations, such as those at Aetna, can also offer jobs to people with corporate communications, human resources and even education backgrounds.

Mandrola said that for the right people, a nontraditional IS job — many of which have high exposure in the IS area — could be a stepping-stone to the chief information officer's office.

"Anything can happen with people who have enough experience over time," said Joe Cloonan, whose financial background brought him to work as a controller in the IS department at The Gillette Co. in Boston. In fact, at Gillette, the current vice-president of IS formerly held a finance position in a Gillette subsidiary where the IS function reported to him.

It is entirely plausible that nontraditional career paths within IS can lead to top positions.

McGarry also agreed. "A good manager is a good manager. The tier below needs to be strong in the technology, but you need good management skills more than you need the technical piece."

And there are some who argue that while there are exceptions to every rule, the majority of nontraditional people involved

in IS are more likely to move to another job within their chosen discipline rather than to a more technical IS job.

"My sense of it is the non-



Richard McGarry is one of a growing number of nontraditional ISers

technical jobs are rotational positions," said Walter Popper, a vice-president at The Index Group in Cambridge, Mass. "The human resources guy will rotate back into HR; the finance guy will rotate back into finance. They won't, on the whole, move up [in IS]."

Bill Hanna, CFO at Los Ange-

les-based Security Pacific Automation Co., a subsidiary of Security Pacific Corp., agreed with that assessment.

It would be difficult for someone holding a nontraditional position in IS to become CIO, "mostly because of the highly technical nature of the information industry," he said. He added that it is more likely that someone involved on the business side of IS would move up in business areas. Furthermore, Popper said, because today's organizations are flatter than they were even a few years ago, there is very little room to move up in most organizations, but spending time in IS can help. "The financial guy putting in a couple of years' stint in IS is the perfect way to enhance his career in finance. Now you can go back into finance and know about computers," he said.

When hiring for nontraditional IS posts, Mandrola said, he looks for people with proven skills both in the discipline he is hiring for and in IS. "Do they have to know how to operate an IBM 3090? No. Or program in assembler language or design a network? No. But they need to know how all of that technology fits together," he said.



Index Group's Popper sees little room to move in IS



Aetna's Mandrola IS offers many nontraditional jobs

BY KARIN GOESSLINGHOFF
SPECIAL TO CW

MUNICH — Digital Equipment Corp. has replaced Nixdorf Computer AG as the contractor for a major computer-integrated manufacturing (CIM) project at Volkswagen AG, one of Nixdorf's biggest manufacturing customers.

Nixdorf has been working on the Tool Construction 2000 project, also known as TIS, for three years. DEC competed for the contract in 1987 and is now expected to invest about \$12 million in the project.

"We find the responsibility attractive, because we don't have to worry about existing systems like most other customers. We can start from the beginning," a DEC spokesman said.

However, the task will not be easy for Nixdorf's successor, which must come up with the necessary resources quickly. About 25 DEC employees will be delegated in the next three years to get this rolling. Part of the software, the PPS Solution, will come from Berlin-based software house PSI.

Last week, DEC announced it has also been awarded a \$100 million contract by Deutsche Telebank Consulting GmbH to supply operational support systems for a pan-European digital cellu-

lar telecommunications network. The first phase will involve installation of more than 100 networked DEC systems.)

Big embarrassment

Nixdorf's withdrawal is embarrassing for all concerned, and no one would comment publicly on the matter. Volkswagen said comment is difficult "because it is unusual for projects of this magnitude to fail." There are many reasons for the unhappy end of the pilot phase, one reason concerned hardware difficulties. "Everything was simply too new for this demanding, innovative project," Volkswagen said.

Nixdorf tried to solve the hardware problem with its Unibus-based Targon/32 computer, which was aimed at manufacturing application tools for individual orders. Volkswagen wanted,

and still wants, to take some of the load off its skilled workers via computer support. However, "it is just not possible to replace a specialist with a computer," a Nixdorf employee said. "When you undertake such a task, you have to change your thinking and also the company's internal organizational structure."

On giving up the CIM deal, a Nixdorf spokesman said, "We have, as VW also has, paid a high price and learned a great deal."

Industry insiders estimate that Nixdorf lost \$30 million. "We have withdrawn and will dismantle everything that we have installed. But a loss of that size is pure conjecture," the spokesman said.

Goesslinghoff is a staff member of PC Week, an IBC Communications Publication in West Germany.

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ADVANCED TECHNOLOGY

TECH TALK

Writing with individual atoms may one day allow electronics companies to manufacture ultraminiature computers and other products. Researchers at IBM used a special microscope, designed by IBM, to position individual atoms of xenon gas precisely on a nickel plate, according to an article published last week in *Nature*, a British science journal. The researchers arranged the xenon atoms to spell out IBM in lines of only one atom wide. The technique has no immediate commercial use but could one day be used to make microscopic circuitry. The scientists wrote with atoms using a microscope that has a single-atom tip that can trace the atomic surface of materials when emerged by an electric current.

Less is more when it comes to laptop computers, a theory Intel Corp. set out to prove recently. The company introduced a low-power, 2,400 bit/sec. modem chip set for laptops that takes up only three square inches. The CMOS 89C024LT modem chip set has a power management system that supports the sleep and resume modes found on many laptops. In the sleep mode, the laptop modem consumes less than five milliwatts of power; in normal operation, it uses 400 milliwatts, about 10% of a laptop's power consumption, Intel said. The chip set sells for \$30 in production quantities of 1,000, according to the company.

Toshiba Corp. announced last week that it will begin marketing two new 1M-bit erasable programmable read-only memories (EPROM) with access times of 55 and 70 nsec. The 55-nsec EPROM offers the fastest access time of any commercial 1M-bit EPROM now available, the company said. The new chips use Toshiba's advanced CMOS process technology, which is also used in its 4M-bit dynamic random-access memory chips. The devices integrate some 1.1 million elements on a chip 6.6 by 6.7mm.

Satellite communications takes flight

New satellite technology may soon supply communications links for computers

BY MICHAEL ALEXANDER
OF STAFF

Midway over the Atlantic on a transcontinental flight, the captain informs you that because of congestion at the airport ahead, your flight will arrive nearly an hour later than scheduled.

You are annoyed, but at least you can do something about it: With a laptop computer, you punch into an on-line database, scan the airline guide for an alternative connecting flight, reconfirm your hotel reservation for late arrival, send an electronic mail message to the prospective client who was to meet you at the airport and transmit a fax with your new itinerary to your assistant back in your home office.

The scenario is not as farfetched as it may seem. In fact, international airline travelers will be able to do those things and more beginning this year, thanks to newly developed satellite antennas and data communications technologies and services.

Companies such as Ball Corp., headquartered in Muncie, Ind., recently started to sell satellite receiving and transmitting antenna systems that will be used to track airplanes on transoceanic flights in addition to providing unusual new services for travelers.

Thin as silvers

The antenna, called phase arrays, are only 1/4-in. thick and about the same size as an open newspaper. The phase arrays can also be shaped to the surface contours of the airplane or even embedded into the skin of an airplane or other vehicle to lessen their profile. said John Fries, a marketing manager at Ball. Unlike other satellite antennas, phase arrays can be electronically controlled, rather than physically aimed to pick up signals in different directions.

"Starting this year and over the next five, we will see a major change in the way airplanes communicate," Fries said. "For transoceanic travel, the only method to communicate was by radio. That tends to be spotty at times and affected by atmospheric conditions, so [satellite communications] was identified as a viable communications medium to supplement and even replace radio communications."

The phase array antennas are linked to satellites with up to six channels. One or two of the channels will be reserved for the flight deck, and the remainder will be used by passengers for voice and data communications by telex, in-flight computers and facsimile machines, Fries said.

Phase arrays for commercial aviation applications are costly — about \$140,000 apiece — but smaller and less expensive antennas are being developed for a variety of ground mobile

applications, Fries said.

A few companies such as Qualcomm, Inc. in San Diego and Hughes Aircraft Co. in El Segundo, Calif., are already selling tiny satellite dishes and other gear to truckers to link computers in truck cabs to computer-controlled dispatching systems.

Roberts Express, Inc., an operating company of Roadway Services, Inc., based in Akron, Ohio, is one of a growing number of trucking firms that have turned to computers and satellites to speed deliveries and pickups of every-

each, which is split between the company and trucker. "We can find out where a shipment is or the location of a truck within 300 yards, anywhere in the U.S.," Childs said.

Roberts Express has 55 dispatchers tracking its shipments and trucks using an on-screen mapping program that allows them to see vehicles plotted on maps of the U.S. The dispatcher uses terminals connected to a pair of Wang Laboratories, Inc. 10000 minicomputers running software developed by Roberts Express and Qualcomm.

The system allows the company to cover more ground with fewer trucks and to dispatch trucks on the run that



Tom Marston

thing from eggs to scrap and to better manage truck fleets.

With a system called Customer Link, based on a satellite communications system developed by Qualcomm, the trucking company is always within a few keystrokes of knowing the location of every one of its trucks, its cargo, the proximity to its destination and other critical pieces of information.

"Roberts Express is the world's largest surface expeditor of hot freight — stuff you've got to have right away," said Joel Childs, marketing manager.

In each trucker's cab equipped with Qualcomm's three-piece Omnitrac Mobile Terminal are a laptop-size computer with keyboard and 40 character, four-line display, as well as a communications unit containing electronics and a Loren receiver, used to pinpoint the truck's precise location within one mile. Mounted on the roof or underneath the cab behind an air dam is a dome-shaped satellite receiving antenna that is only 11 1/2 in. in diameter and 6 1/2 in. high.

Roberts Express plans to equip 975 trucks, owned and operated by independent contractors, with the two-way data messaging systems by September. Already, 850 trucks have had systems installed at a cost of about \$4,500

may have once been "dead-heading" — traveling without a cargo because the dispatcher was unable to contact the driver in time to make a pickup.

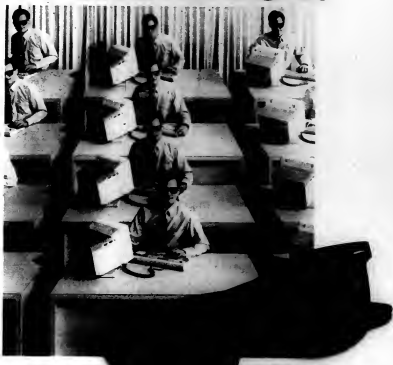
Messages from dispatchers travel by telephone to Qualcomm's Network Management Facility and then are bounced off a satellite to each trucker's cab.

The trucker can "free-form type" anything up to 2,000 characters or fill in the blanks on a macro message," a Qualcomm spokesperson said. "There are 63 predefined macro messages, which enables the trucker to be more productive." Qualcomm's system has been installed in 7,500 trucks, and 5,000 to 6,000 systems are on order.

"The benefits have been more qualitative than quantitative. Customers use us for emergencies; our competition is the heavyweight air freight companies, not other trucking companies, so we are running 365 days a year, 24 hours a day," Childs said. "It's a narrow niche right now, and we don't have any competition, but we think we will eventually. What we want to do is raise the cost of entry into this business."

In addition to the satellite system, an electronic data interchange system developed in-house allows customers to dial in and track their shipments.

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EDITORIAL

F.U.D. factors

IBM HAS BORNE the brunt of accusations over the years as being the most prolific purveyor of F.U.D. — fear, uncertainty and doubt — in the marketplace. Perhaps recognizing an element of truth in these charges, the company undertook efforts a couple of years ago to open its kimono to customers, consultants and the press by articulating product directions and strategies more clearly.

However, the F.U.D. factor is once again rearing its head, this time in the mainframe arena. There, IBM's 3090 line is coming to the end of its life span, but customers aren't likely to see a successor to the line for a year or so. By then, Hitachi Data Systems will probably have unleashed a high-end mainframe that is expected to offer features and price/performance superior to IBM's current high end.

Now comes the F.U.D. It seems there is a growing hue and cry that the current high-end 3090 is not upgradable, at least not to the extent that other IBM mainframe lines have been "kicked" up in performance during their lifetimes. This may in fact be partially true, depending on one's definition of a kicker. As in the past, customers are being assured that IBM will take care of the customers' investments in IBM hardware; in some cases, they are being told a little more.

But a troubling wrinkle in the current F.U.D. scenario is the source of said F.U.D. It appears to be originating less at the customer sites or at IBM — or at Hitachi or Amdahl, for that matter — and more from within the community of high-powered consultants. In fact, a recent story in *The Wall Street Journal* about IBM's upgrade dilemma alluded to concerns that the more F.U.D. in the marketplace, the better the consulting business is.

One large mainframe customer told us that in the midst of the upgrade controversy, he received an invitation from Hitachi to attend a mainframe futures forum featuring speakers from one of the major mainframe consultancies. While this is not an unusual position for the consultants to be in, the timing does raise the question of just what everyone's motivations are in this sensitive matter.

The "facts" as we know them are these: As we reported last week, 3090 users should not look for any significant performance upgrades before the so-called Summit series is announced — perhaps by the end of this year, with deliveries six months or so later. IBM will provide improvements in functionality and has implied to customers that these will be related to specific applications (meaning that the improvements could come largely in software).

Also, because this is a transition year for a major product line at IBM, mainframe buyers are not likely to see the kinds of deals available now from IBM and the plug-compatible manufacturers for several years to come.

Beyond that, nothing is certain — except, of course, a new release of F.U.D.



LETTERS TO THE EDITOR

Kudos to recyclers

With Earth Day coming up April 22, what better way to show concern for our world than by starting to use recycled paper products? As a writer/reviewer, I don't recall having seen any manuals, product sheets, newsletters or press kits that said they were printed on recycled paper. Can you imagine the number of trees it takes just to print the manuals for Wordperfect, 1-2-3, dBase and Word?

Interactive Development Environments, Inc., a computer-aided software engineering software developer in San Francisco, not only uses recycled paper but also recycles its own. Kudos to them! Are there other companies in our industry using recycled paper? If so, let's find out who they are so that we can express our approval.

David Batherston
Sausalito, Calif.

RDBMS rebuttal

In your recent Buyers' Scorecard [CW, March 5], the survey of relational database management systems was conducted without regard to equal conditions.

Realistically speaking, there is no way to compare IBM DB2 or SQL/DS capabilities with Sybase, Oracle, RDB, Ingres or Informix, since they are each executed under different operating systems; this, the survey's results were very inadequate.

In future surveys, it would be good to have a common ground for comparisons. For example, it would be good to know if any of the previously mentioned RDBMSs can execute over 600 million rows in a production system, like DB2 can.

A competition under unequal conditions reflects unrealistic results; it may also create confusion for the end users.

George E. Coronado
Publisher, "DB2 and SQL/DS
Users Bulletin"
New York

Group congrats

Bruce Sanders is to be applauded for bringing groups back into groupware [CW, March 5]. It is ironic that we seldom see groupware products that take advantage of the past 75 years of research on group process and effectiveness.

Unfortunately, I cannot agree with all of Sanders' prescriptions. For example, he suggests that the way to avoid arguments is to keep team size small. While this helps to maintain group harmony, it overlooks the value of arguments that reflect diverse perspectives and new ideas.

However, the important contribution Sanders makes is that groupware development does not have to reinvent group process research by trial and error. We already know a great deal about groups. Groupware should build on that knowledge.

Sander P. Schuman
President
Executive Decision Services
Albany, N.Y.

Outdated OSs

The article "Does Unix win because of OS/2's failure?" [CW, Feb. 26] overlooks the fact that both systems are dinosaurs that both systems owners don't need.

Overized operating systems such as Unix and OS/2 exemplify outdated computer concepts that increase costs by reducing

efficiency. Practices such as overreliance on the central computer and storing too much information on giant magnetic disk drives also increase costs.

Having a large operating system in random-access memory made sense when everyone had to share the central computer. Having functions in workstation RAM that are used only once a day or even once a week reduces the space available for user programs and data, forcing more frequent disk reads and writes of portions of the program or data set.

Frequently used system functions should be stored on the disk or run from read-only memory rather than RAM.

Many installations encourage using the central computer for operations like word processing that should be done at the workstation level. This practice forces the central computer to waste time switching programs in and out of RAM and requires a more expensive system than is really needed.

Central magnetic disk drives often become overloaded with permanent files that are accessed infrequently. Utilizing less expensive write-once read-many drives would allow an installation to get by with a smaller, less expensive magnetic drive for files subject to change.

B. Lucas
Hutchinson, Kan.

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Lubert, Editor, Computerworld, P.O. Box 917, 375 Connecticut Road, Framingham, Mass. 01701. Fax: (508) 875-8303; MCI Mail: COMPUTERWORLD.



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Free the RBOCs, Judge Greene

JIM SLATTERY



As a member of the House Energy and Commerce Subcommittee on Telecommunications and Finance, I have participated in an ongoing comprehensive review of the impact of the line-of-business restrictions placed on the regional Bell operating companies (RBOCs) as a result of the AT&T consent decree.

Our goal has been to determine the effect of these restrictions on the development and availability of telecommunications technologies and to assess whether the relaxation of the restrictions — with appropriate safeguards — would promote development of an advanced public telecommunications infrastructure.

I believe that by relaxing these restrictions we can dramatically increase the quality and diversity of telecommunications products and services available to U.S. consumers, businesses and educational institutions.

After years of litigation, the Modification of the Final Judgment (MFJ) of a 1982 consent decree between AT&T and the U.S. Justice Department re-

quired AT&T to divest itself of the Bell operating company local networks. The consent decree imposed numerous line-of-business restrictions on the RBOCs to prevent any recurrence of anticompetitive practices.

The MFJ prohibits the RBOCs from offering long-distance service, manufacturing telecommunications and customer-premise equipment, offering information services and providing nontelecommunications products and services.

I believe that any organization capable of providing information services to U.S. consumers should be allowed to do so, within necessary regulatory constraints. The technology of communications is now in a period of revolutionary change. In the future, the economic edge will shift to communities that have the best communications infrastructure.

Since the final 1984 divestiture, the telecommunications industry has changed substantially. The annual rate of industry growth has increased, and there has been a proliferation of alternative communications providers entering different market segments. These providers have a wide range of services and have stimulated technological innovations. This growth notwithstanding, acquisition

of U.S. telecommunications and information-sector assets by foreign-based companies increased dramatically in the five years following divestiture.

I am concerned that the existing RBOC line-of-business restrictions may be significantly increasing the cost of bringing



Arthur Meehan

innovation into the telecommunications marketplace as well as delaying the availability of benefits to consumers through expansion of the information services marketplace. The U.S. has lost jobs, and the U.S. consumer and entrepreneur have not experienced the full benefits of the information age.

An open, forward-looking and procompetitive telecommunications policy is critically important to our country. I want Congress to move forward and encourage the provision of high-

quality services to consumers by all telecommunications networks capable of doing so. I want Congress to assist U.S. industry in winning markets in international trade and foster economic development and job creation in the U.S.

The ongoing congressional debate over these issues, however, has been overshadowed by the larger question of which branch of government should be

responsible for determining policy. However, this is not a task for the judiciary as properly suited.

By law, the court must determine policy, which in this instance is based solely on antitrust principles and statutes. In addition, the judicial process has involved numerous filings, rulings, waiver hearings and lengthy appeals that have often delayed private decision-making and have hampered domestic and international telecommunications investments.

This has involved the court in an uncommon role as supervisor of business activities in a complex, technologically sophisticated market area. Determining the continuing scope and validity of these restrictions has involved the court with policy issues more appropriate to the legislative branch than to the judicial process.

I believe that Congress and the Federal Communications Commission must develop coordinated telecommunications policy for all aspects of the industry in order for the U.S. to successfully compete internationally. The District Court's authority to adopt a consent decree comes only from the statute that the decree is intended to enforce. Congress must reassert its constitutional authority as a drafter and amender of statutes and restore oversight to the telecommunications public policy arena to the legislative branch.

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IBM builds J series bridge to help ascend to Summit

IBM WATCH

FRANK GENS



Hitachi Data Systems will soon unveil its own mainframe family, known as K-10 or Andromeda. This presents a problem for IBM because its Summit mainframe family will not be available until well into 1991.

However, IBM will attempt to offset the HDS announcement by introducing an enhanced 3090 series — what I call the J-Prime — during the July to October time frame.

The J-Prime will be marketed heavily as a "bridge" between the 3090s and Summit. The \$60 billion question is, just what kind of "bridge" will the J-Prime be? The following are two competitors.

ing J-Prime scenario:

• Nonupgradeable bridge: The J-Prime will simply be a processor swap with a modest amount of Summit technology but not upgradeable to Summit. Such a J-Prime would clearly be a stopgap solution and, from an upgradeability standpoint, a dead end.

• Upgradeable bridge: Since J-Prime will incorporate a large amount of Summit technology, including the fiber channels and power supply, as well as a new frame and cooling system. In this scenario, the J-Prime would be physically upgradeable to Summit models. Such a 3090 would be the beginning of the next generation and could actually be marketed as a Summit.

Ugly upgrade

The first scenario would be relatively easy to implement, inexpensive — and uninteresting. The latter route would obviously be the more dramatic. It would also be much more expensive for IBM to implement.

To upgrade a 3090 to a Sum-

mit, I estimate that IBM would have to replace fully two-thirds of the current system — a very ugly upgrade indeed. However, the largest obstacle to the upgradeability scenario is actually financial.

For an upgrade the vendor typically charges the customer only for the additional performance increment. Then, it is economically feasible for IBM to deliver an upgrade that consists of an almost total replacement of the 3090 and charge only for the incremental performance? I believe that making this a pricing issue is the focus of the upgradeability debate taking place within IBM.

If offering upgradeability presents such a headache for IBM, cynical ask, why is the vendor considering it? IBM enjoys the massive revenue and profit boost it receives when it traditionally obsolesces a product and its customers must replace their entire systems. Why even think of offering an upgrade? The following are the obvious reasons:

• To fend off the competition (in this case, HDS Andromeda).
• To maintain its account control: Customers who can upgrade are less likely to invite plug-compatible manufacturers

in to bid a box swap.

However, there is another important reason why IBM is considering this tortuous upgrade option, and it has more to do with accounting than technology: Owners of 3090s installed last year, this year and next are worried that they will have to take significant book losses if Summit has too big an impact on 3090 values.

Upgradeability to Summit could solve this problem, because the 3090 serial number would effectively move to the Summit system. With such a "weld serial number" the owner could continue to depreciate the 3090 base after adding the upgrade cost.

Protecting its own

Why would IBM care about the economic value of 3090s installed in the last year or so? Because about one-third to one-half of such machines are owned by IBM Credit Corp. Particularly during the past year, ICC captured many 3090 deals by offering aggressive lease rates and therefore is without a doubt IBM's largest "customer." The most recently installed machines under lease have a significant residual exposure, which ICC must

recover in the next two to three years.

Thus, while offering an upgrade from 3090s to Summit is a technical and financial challenge to IBM, it is clear that the vendor has some strong incentives to try to make that scenario happen.

I believe, however, that the financial side of life will make IBM unable to offer such upgrades at an attractive price for all 3090 customers.

If IBM can make the numbers work for a very 3090-to-Summit upgradeable customer — and ICC can have the greatest financial stake in making upgrades attractive from J (and soon, J-Prime) systems.

Upgrades from 3090 Base, E and S machines are likely to be prohibitively expensive. For all 3090 customers with large volume purchase agreement discounts, upgrades likely will continue to be generally uncompetitive with box swaps.

Thus, while IBM may announce an upgrade strategy with the J-Prime this year, I think that scenario continues to be problematic for IBM — for many customers any such upgrades are likely to be most from an economic standpoint.

Gens is vice-president at Technology Investment Strategies Group, a market research firm in Princeton, N.J.

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SYSTEMS & SOFTWARE

HARD TALK

Rosemary Hamilton

Affairs of discounting

Mainframe discounting is a lot like the topic of infidelity. It generates endless whispering and nearly always concerns other people.

The facts, therefore, tend to be tucked between exaggerations and denials.

Bob Djurdjevic, president of Annex Research, is of the opinion that "discounting is one of the myths of 1989."

On the other hand, IBM "allowed the discounting practices to go to the lowest level they have ever let them go," said Thomas Frana, vice-president and general manager for the central sales division at Hitachi Data Systems Corp. "We'd walk through the door last year with a proposal, and they'd respond almost instantaneously with a lower price."

One interesting tidbit came from conversations with many observers, who said they feel that the reason it is no difficult to determine exactly what is being happened with discounting is because of a fairly recent IBM policy that calls for users to sign a nondisclosure contract governing discounted deals.

One very important point is
Continued on page 37

AS/400 drives make up for past

ANALYSIS

BY MARYFRAN JOHNSON
OF ENR

One year ago, industry analysts were calling it the black eye, the fly in the ointment, the big blotter. Customers simply called it a royal pain.

The target of their frustration was the molasses-like speed of the 2440 tape drive for IBM's Application System/400, which was bogging down users who needed to back up multiple gigabytes of data each night.

It was the loudest and most persistent complaint that was lodged against IBM's new mid-range darning.

Today, customers are complaining only about the expense

as they play a fertile field of choices, plotted both by IBM and third-party vendors of IBM-compatible tape subsystems.

"IBM delivered. We're very satisfied with the tape drives now," said Steve McManama, director of computer operations at Kendall Healthcare Products Corp. in Mansfield, Mass.

IBM's competitors continue to deliver as well. Just last week, Waltham, Mass.-based IPL Systems, Inc. introduced a new 5-in. cartridge tape drive for the AS/400 that employs helical-scan technology and costs at least \$10,000 less than IBM's high-end 3490 drive.

While the third-party market is growing through the efforts of companies such as Memorex Telex Corp., Cipher Data Prod-

acts, Inc., Fujitsu America, Inc., Laser Magnetic Storage International Co. and Storage Technology Corp., analysts said their

presence is still far from significant.

"You need a special expertise to break into the AS/400 market, and only a handful of people have that expertise," said Jay Bretmann, an analyst at Inter-

Continued on page 36

Growing choices

Users of the IBM AS/400 may still complain about price, but they say they like having tape storage options

Unit density data transfer rates:	
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• At 2,000 bytes/sec.	
• At 4,500 bytes/sec.	
• At 9,000 bytes/sec.	
Tape speed	
75 to 147 in./sec.	
Price: \$34,200	

Tape speed	
130 in./sec.	
Price: \$22,600	

Source: IBM

CW Chart: John Turk

Focus 4GL weds Level 5 expert system

BY AMY COETSE
OF ENR

NEW YORK — Information Builders, Inc.'s Focus fourth-generation language just got smarter. The firm recently introduced an expert system component that can be used to develop Focus applications containing embedded knowledge.

The product, Level 5 for Focus, uses the Level 5 expert system acquired by Information Builders in 1987. The firm has been selling Level 5 as a stand-alone product with access to Focus data, but the new offering marks the first time the technologies have been truly integrated.

The Level 5 expert system has been embedded within Focus so that Focus procedures running against any database can call a Level 5 knowledge base.

Information Builders is hoping the marriage will help bring expert systems to real-world business systems and elevate traditional decision support to a more strategic decision management function. Focus applications will be able to call on the expert system to perform a range of consultative queries, exception reporting and intelligent validation of data.

For instance, an application as simple as a sales prospect report could be enhanced with a

set of rules to determine the most promising prospects, or a more complex rule base could be developed to optimize SQL requests to a DB2 database, helping to balance the resource load and enforce security.

"This is tremendous," said Joseph Sipiro, president of Sipiro Consulting in Los Angeles and a beta-tester of Level 5 for Focus. "When I design and implement business applications, there is a lot of computation and validation of data, based on a great deal of business rules." Now, Sipiro said, he can take many of these computations and put them in a knowledge base embedded in a program.

Best of all, he said, is that business rules can be stated in business language rather than programming language syntax so that an end user can look at a printout of the business rules and understand it.

"There is much more natural communication going on" between the programmer and end user, Sipiro said, which should facilitate development.

Level 5 for Focus is now available for IBM's VM and MVS operating systems and will be available for the Digital Equipment Corp. VAX/VMS next month. The package requires Focus, the Level 5 development system and the Level 5 for Focus enabling component. Pricing for IBM mainframes begins at \$19,200 and \$2,800 for DEC VAXs.

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Milking a decentralized system

H. P. Hood hopes new computing arrangement will improve control

ON SITE

BY SALLY CUSACK
OF STAFF

By accepting delivery of its first Applications System/400 late last month, H. P. Hood, Inc. officially launched a three-year plan to decentralize computing at the 144-year-old Boston-based dairy products manufacturer.

With 2,200 employees scattered throughout three major divisions and \$710 million in annual sales, Hood executives feel that decentralizing will ultimately result in better overall control in process manufacturing.

"Eventually, we hope to have the AS/400s functioning as file servers to the personal computers," said Girard D. Liberty, director of MIS at Hood.

In the interim, Hood is contracting out its data processing

operations to its parent company during this transitional phase—a decision dictated by the corporate purse and the cries of end users who suffered five-second response times.

"We had pretty much hit the limit with the IBM 4381-123's we were using here at headquarters," Liberty said. The slowdown resulted from company growth and several recent acquisitions, including Hendrick, Inc. in Milton, Mass., and DairyLac Cooperative, Inc. in upstate New York.

Hood, a subsidiary of Agway, Inc., made the decision to decentralize both manufacturing and computing functions over a year ago. The company also decided it did not want the expense of up-

grading to an IBM 3090-type computer. "It meant going the whole water-cooled data center route," Liberty said, "and the system would be removed in three years anyway."

Agway's Data Services subsidiary was already handling disaster recovery functions for Hood, and entering the full repertoire of Agway's data processing offerings seemed like the next logical step.

By using Agway Data Services as a facilities manager, the company is able to focus more intently on its decentralizing procedures, Liberty said.

"Decentralization forces a broader view of the business. It makes the job richer, improves customer relations and improves

the IS role within the business," Liberty said. "The networking capabilities across the company will give employees a broader perspective of the entire operation."

Networking across the mini-computer platform will allow end users to generate reports, share customer profiles and track the product transfer process, as well as provide route settlement information and better response to inquiries. The customers will benefit from local account administration functions and programs tailored to meet individual customer needs.

Customized reports

For example, Liberty said, individual units will be able to provide customized reports to large supermarket chains. Regional general managers will take responsibility for operations, financial reporting, general ledger, customer service and order processing on a local level. With the AS/400-type system, Hood lacked the horsepower to support such customized processing.

Conversion to the Agway system was accomplished in 45 days, Liberty said. But the greatest improvements were realized by the company's end users, who reported internal response times of 0.7 seconds, and the number of transactions increased by more than 20%. Both a 3081K and a 3090-200 will be on the 200 running under XA in July.

The company is anticipating as many as six AS/400 installations during the next 18 months. The minicomputers will communicate with one another over dedicated 9.6K bit/sec. leased lines, and central software functions will be maintained by a relatively small staff at the Boston headquarters. The system will run System Software Associates' Business Planning Control System, an integrated financial applications suite specifically tailored for multipoint and multiwarehouse manufacturing operations.

Under the transition plan, Hood maintains a small group in Boston to meet end-user needs while the company is tied via T1 lines to Agway's IBM 3081K

running MVS/SP in New York. Decentralizing activities have reduced the Hood information systems staff from 38 to 35, and Liberty notes that the only cuts have occurred in technical services. "We haven't reduced the operations staff at all," he said.

Users will reportedly notice minimal, if any, change in the operating environment during the transition and will maintain the 0.7-second response time using 3270-type terminals. Hood will eventually install the AS/400-



DECENTRALIZATION forces a broader view of the business."

GIRARD D. LIBERTY
H. P. HOOD

compatible 3477 terminals and scatter NEC Technologies, Inc. and IBM PCs throughout the organization.

Walking around Hood's former data center, one notices direct-access storage devices (DASDs)—lots and lots of 3380 DASDs—standing in a corner, taped up and ready for return to the leasing company. The room houses three printers, a private branch exchange system, cable, the AS/400 computer and a screen for monitoring mainframe activity. There is a rectangular mark on the floor where the 4300 used to sit.

"Decentralizing will put us in a better position overall," Liberty concluded. "It will allow both Hood and Hood customers to better leverage time money."

Opening some 3270-like windows

BY AMY CORTESE
OF STAFF

Information Science, Inc. is the latest applications vendor to offer users an alternative to crowded IBM 3270 terminal screens with the release of a graphical front end for its human resource management software.

The personal computer-based software, called Invision, conforms to IBM's Common User Access (CUA) guidelines. CUA, a set of conventions for displaying and manipulating data on a screen, is a first step toward a full windows-based graphical user interface. Many application software vendors, including Management Science America, Inc.—now part of Dun & Bradstreet Software—are starting to provide PC-based front ends as an alternative to traditional 3270 terminals.

Invision uses graphical

representations and icons to replace lines of text and includes a builder component to customize screens. The company said it will move to a windows-based interface when Microsoft Corp.'s Windows 3.0 becomes available later this year.

Placed side by side, terminal screens and graphical front ends are as different as night and day. With a terminal, "you adjust to it, not the other way around," said Chuck Harris, manager of human resource information systems at Amerigas Propane in King of Prussia, Pa.

Icon-oriented

Invision is currently available as a tool for developing a customized user interface and will be available for the firm's Savi human resource management software later this month. The pricing is \$25,000 for a builder and end-user component with support for two users.

eliminates the need to memorize passwords and transaction codes and lets icons represent actions, providing a file folder for each logical area, such as benefits or hiring.

"Once a user is exposed to it, I don't think they would go back [to 3270 terminals]," Harris said. However, moving to a more intuitive graphical front end requires a substantial hardware investment for many firms now using 3270 terminals. "Most companies are moving that way, but there has to be a cost justification up front," Harris cautioned.

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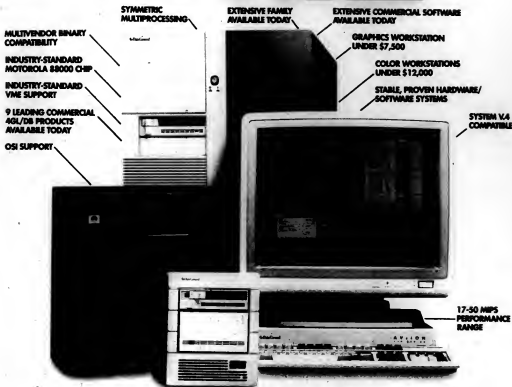
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AS/400 drives

CONTINUED FROM PAGE 29

national Data Corp. in Framingham, Mass.

This past fall marked a turning point for AS/400 users with the second version of the OS/400 operating system. It cleared up the original tape-bottle-neck and allowed IBM to announce a number of tape backup options, making the machine hospitable to a range of traditional reel-to-reel drives and faster cartridge-based tape subsystems.

IBM also produced a special interface that allowed the 3422 tape drive, which has a loyal following on IBM System/38s, to be used on the AS/400. The company also unveiled a high-speed attachment that souped up 2440 performance.

For AS/400 installations in which multiple gigabytes of data must be backed up and stored each night, IBM's premier solution is the 3490 high-speed cartridge tape drive, introduced last fall in two models that were recently increased in price to \$54,840 and \$82,290.

"It really is surprising that IBM came out with such an expensive solution," said Robert Callery, an analyst at IDC Financial Services in Framingham, Mass. "You certainly limit the potential market by charging so much for it."

For midsize shops, IBM released the

9348 magnetic reel-to-reel tape drive at \$22,660 last September.

At Kendall Healthcare, McManama is using the 3490 and 9348 drives and finding that they "live up to IBM's promises."

With 226 bytes of data stored on two AS/400 Model 70s, a full system backup used to take eight hours per machine on weekends with the 2440 drives, McManama said. "We're doing that in approximately three hours now with the 3490."

Although IBM plans to discontinue its 3422 line of tape drives this July, the 3422s provided just the right solution for D'Arcy Mason Benton & Bowles, an advertising agency based in Bloomfield Hills, Mich.

"We looked at the 3490 because we have about 5,000 volumes of tape to sup-

port, but I couldn't justify the cost," said Rick Pinkos, vice-president and manager of technical services at D'Arcy.

The firm used the slower 2440s for its Models B45 and B70 while waiting for the special interface to hook its older 3422 drives to the AS/400s. "We had such a significant investment in the 3422s," Pinkos explained. "Backup really becomes an issue when you have 18G bytes of [storage] on the system."

Even though IBM buys most of its tape storage technology from other companies, it still dictates high-end tape standards because of its dominance in the mainframe markets, analysts said.

Yet IBM hardly seems eager to lead the storage market. Its data compression capability, for example, was introduced

only after Hewlett-Packard Co. and Hitachi Data Systems Corp. began offering data compression on their drives.

"By conspicuous absence, IBM also does not offer a helical-scan tape drive for the AS/400," said Robert Abraham, an analyst at Freeman Associates in Santa Barbara, Calif. "They did announce availability of an 8mm [helical-scan] product for the RS/6000 workstations, so one might speculate they could offer the same on the AS/400."

Dave Andrews, an AS/400 consultant and president of ADIM, Inc. in Cheshire, Conn., said he thinks IBM is "rethinking its strategy" on tape storage in 1991 and will offer "lots of little 8mm drives operating in parallel" rather than one large \$80,000 high-speed drive.

Filenet aims at IBM platforms

BY MARYFRAN JOHNSON
OF SAN FRANCISCO

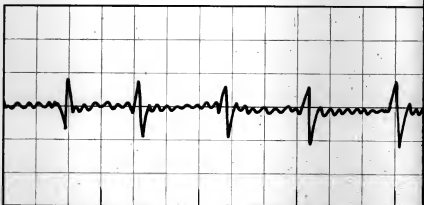
COSTA MESA, Calif. — Filenet Corp. recently extended its image processing systems to run on IBM Personal Computers and compatibles and announced the second generation of the company's Worldflo software.

The new Open Worldflo Architecture comprises the industry's widest range of image processing services, company officials said. The changes will allow users formerly restricted to Unix-based Filenet workstations to develop Worldflo applications on their PCs as well as to integrate popular third-party application software.

A key part of the late-March announcement was Worldflo Queue Services, an object-oriented routing manager and application development tool that permits software developers and resellers to use multiple hardware platforms, including IBM PC ATs and Personal System/2s.

The queue services — which support not only images but also documents, data and text — can be used to schedule work, forward documents to other workstations or schedule documents to appear in a queue after a period of time.

Robert Castle, vice-president of marketing for Filenet, said Worldflo's new abilities will enable the company to aim its product "at the heart of IBM turf" in large banks and insurance firms. Filenet has 300 systems installed worldwide and earned \$83 million in revenue last year. When the Worldflo software was first introduced in 1984, it supported only Filenet image workstations. This generation supports standards such as Dynamic Data Exchange and Ethernet, Castle said.



This is what typically happens to people about

It starts almost immediately. You see menu commands you already know. Which, to a Lotus 1-2-3 user, is a comforting sight. You use the familiar 1-2-3 keystrokes. No surprises there. You realize that it feels like 1-2-3 because it is.

But wait, there's a mouse. And pull down menus and dialog boxes and a WYSIWYG display. Which is where things suddenly start getting exciting.

Like 1-2-3 Release 3, 1-2-3/G™ offers true 3D worksheets, file-linking, direct access to external databases, and network support. And through its

graphical user interface, plus a host of new features, 1-2-3/G becomes a powerful analytical tool that is extremely easy to use and responsive to the way you work.

You discover an exciting new feature called Solver, an advanced goal-seeking technology that gives you an amazing short-cut to solve complex "what-if" business problems. In seconds, Solver shows you "how-to" achieve your desired results, based on the variables and constraints you put into your spreadsheet.

And when you're ready to present your results, you'll find a



Whether it's working with a 3D file or bringing in information from external databases, the power of 1-2-3/G is always within reach.

variety of dramatic new graphing capabilities that will help you make your point with clarity and impact.

Plus, 1-2-3/G takes advantage of the speed, large memory, and multi-

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Legent ships DB2 tuner

Customer-developed Accumax released without fanfare

BY JEAN S. BOZMAN
CW STAFF

Legent Corp. quietly began general shipments recently of its Accumax performance optimizer for IBM's DB2 relational database management system. The product, which has never been formally announced, is Legent's first DB2 performance monitor, according to the company.

Legent, based in Pittsburgh and Vienna, Va., plans to publicize the product

next month after many users have already installed it, company executives said.

"We released it April 2, about 45 days ahead of our marketing program," said Ken Dove, manager of development for Legent's performance and optimization group.

According to product manager Jim Hoffman, Accumax was developed by a customer two years ago but has since been enhanced by Legent.

Accumax is priced from \$13,000 to \$35,000, depending on the size of the

IBM mainframe used. The product competes with other DB2 tuning tools sold by BMC Corp. in Sugarland, Texas, Cande Corp. in Los Angeles and Goal Systems, Inc., in Columbus, Ohio.

The product is intended to be a design and tuning tool for database application programmers and database administrators. It functions by presenting DB2 transactions as they occur and archiving them to aid in the redesign of a user's DB2 system.

"An applications programmer can sit at his desk and watch his application run through the system in real time," Dove claimed. "[The programmer] can look at the lock contention or at the SQL statements that are causing resources to be locked."

Hamilton

CONTINUED FROM PAGE 29

that IBM — the final source to explain discounting — would not comment on it at all.

However, two information systems managers did acknowledge such contracts. The problem is, neither would reveal the exact terms, so it was impossible to determine whether the nondisclosure agreement was used to close the lid on the actual discount or to govern a special bid.

Here's one man's opinion: "The purpose is simply to prevent the dissemination of pricing information," said Thomas Loane, who heads up IS for Alamo Rent-A-Car.

Loane said he's been asked to sign such deals and doubts they are enforceable.

What this means, then, is that the exact nature of discounting deals may not be revealed. Does this leave users hanging? Probably not.

As another IS manager put it, "There are circumstances that on the surface look really good or really bad, but unless you know the exact terms of the deal, you don't really know."

SOME USERS indicated that they signed deals to keep quiet, which implies that they got a good deal. True, we don't know exactly how good, but we know it was good.

Here's what we do know: Discounting has happened and will continue to happen. Some users indicated that they signed deals to keep quiet, which implies that they got a good deal. True, we don't know exactly how good, but we know it was good. And for the users out there ready to do business with IBM or the other mainframe providers, this means you can cut a good deal, too.

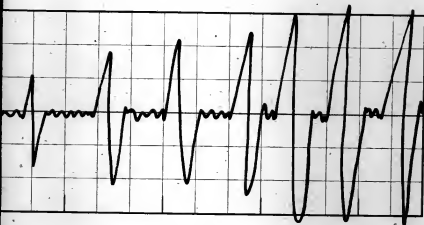
Industry observers will likely call this conclusion simplistic — and it is. But it's clearly the one fact that can help users. It lets them know that vendors are willing to negotiate, and they can use that knowledge to cut themselves good deals.

The rest of the discounting story — when it began, who started it, the extent of it last year vs. the extent of it this year and how big the price cuts were — is the stuff of industry gossip and differing opinions. Depending on your source, this information can either arm you better to do battle with your supplier or lead you down the wrong path and get you nowhere.

If you talk to certain consultants, they'll use terms such as "out of control" and talk about vendors bleeding and 50% price slashing. Then you may talk to other consultants who will tell you discounting is a myth.

It's best to conclude that mainframe discounting has happened and that it's likely not as out of control as some have suggested. You may get a good deal if you play your cards right. But don't expect miracles, and don't believe everything you hear. Good luck.

Hamilton is *Computerworld's* senior editor, systems and software.



3 minutes into a 1-2-3/G product demo.

Not surprisingly, 1-2-3/G received the Best Software Product award at its Comdex preview last fall. And PC World has called it a "new high in spreadsheet technology."

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Lotus 1-2-3/G



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1-2-3/G allows you to look at your graphs and spreadsheets simultaneously, and lets you customize them with fonts, colors and borders.

tasking capabilities of OS/2®. And it supports Dynamic Data Exchange, enabling you to swap live data between 1-2-3/G and other OS/2 applications for true application integration.

Soviets plan their CASE against nuke disasters

BY GARY R. ANTHES
CHICAGO

WASHINGTON, D.C. — The development of computer-aided software engineering technology in the U.S. is driven by the marketplace, but in the Soviet Union, forces other than *perestroika* are driving CASE.

Igor Bukreev, first deputy chairman of the Soviet State Committee for Computer Systems and Informatics, said at the CASEExpo Spring 1990 trade show that the Chernobyl nuclear power facility disaster has spurred Soviet efforts in CASE.

Using an interpreter, Bukreev said, "The Chernobyl case has led to a state of affairs where the problems of automated systems and control systems [required] a new approach. The approach is totally different than used to be. I would call this tragedy a very powerful stimulus to the development of our CASE technology."

The Soviet official said his country is using software to shed light on the causes of the meltdown at Chernobyl to help pre-

vent similar accidents. "We are trying to work out software models of all the processes. A very powerful simulating complex has been put together that not only re-creates the whole evolution of the Chernobyl catastrophe but also allows us to form controlling operations," he said.

Soviet-style CASE is geared to aerospace applications and driven by the principles of mathematics and physics, Bukreev said, and the Soviets are concentrating on improving software productivity by developing software modules that can be used by computer specialists and by encouraging the use of standard interfaces, automatic testing, graphic images, "artificial intellect" and natural languages.

Until recently, advanced software technologies in the Soviet Union were confined mostly to isolated and secret military use, Bukreev said. "Due to events that have taken place throughout the world and in our own countries... these technologies surfaced and are being widely implemented for various social industries," he said.

Vendors will like taste of vanilla SQL

BY JEAN S. BOZMAN
CHICAGO

There is currently no "silver bullet" that can pierce any relational database and target its data. However, there could be one in the form of a new industry standard for the SQL query language now being defined by a multivendor consortium called the SQL Access Group, Inc.

At last month's DB Expo '90 in San Francisco, the 8-month-old SQL Access Group announced that it had finalized its specifications for a "vanilla" SQL that would connect many vendors' relational database management systems. The proposed standard, developed by the same companies that participate on the American National Standards Institute (ANSI) and International Standards Organization (ISO) committees, is slated to be tested and demonstrated by year's end.

"It's a very difficult to manage a lot of one-to-one gateways that link RDBMSs through machine-specific software," explained Jeff Jones, manager of product planning at Teradata Corp., an SQL Access Group member. "Once we get one set of SQL code for all machines, then SQL connectiv-

ity will be managed by the user's communications network, and vendors will only have to support one flavor of SQL."

All vendors, that is, except for IBM, which invented SQL in the late 1970s. "We have" updated IBM and written them letters asking them to join," said

Teradata. New members include X/Open Co., Informatica Corp., Retix Corp. and Unify Corp.

Other developments at DB Expo included:

- Information Builders, Inc. in New York announced that its Focus development environment was available for shipment to users.

IT'S VERY DIFFICULT to manage a lot of one-to-one gateways that link RDBMSs through machine-specific software."

JEFF JONES
TERADATA

John Robertson, section manager for distributed databases and tools at Hewlett-Packard Co. also an SQL Access Group member company. "We've been told they would rather monitor the SQL Access Group activity through their involvement in the ANSI and ISO committees."

providing members of the SQL Access Group include Digital Equipment Corp., Fujitsu America, Inc., HP, Informix Software, Inc., Ingres Corp., NCR Corp., Oracle Systems Corp., Sun Microsystems, Inc., Tandem Computers, Inc. and

ers of Tandem's Nonstop SQL RDBMS.

- Alameda, Calif.-based Ingres and Price Waterhouse announced a strategic relationship in which each firm would support the other's consulting services. The pact targets large-scale application development based on the Ingres RDBMS.
- On-Line Software International at Fort Lee, N.J., announced Release 5.0 of its Proedit development tool for IBM's DB2 RDBMS. The new release supports DB2 Version 2.2, the latest release of DB2.

NEW PRODUCTS — SOFTWARE

Utilities

Software Partners/32, Inc. has announced Release 5.0 of its Tapeasy VAX/VMS Tape Management System.

Tapeasy Version 5.0 enables system users to write to multiple tape drives concurrently by using a Concurrent Magtape Processing feature. The product also offers the ability to base retention of media on generation or version count, the vendor said.

The product supports Digital Equipment Corp.'s TA90 cartridge drives and includes built-in compatibility for all standard 8-mm cartridge drives.

A license fee for a Vaxstation 2000 version of Tapeasy Version 5.0 costs \$1,500; a site license sells for \$14,500. Software Partners/32 447 Old Boston Road, Toppfield, Mass. 01983 508-887-6409

Denax Software, Inc. has announced the release of Securepak Version 3.0, an integrated set of reporting, query and modeling functions.

The product provides the ability to manage access control lists, monitor all aspects of a VMS system's security and guard against deliberate or accidental intrusion, the vendor said.

An Advisor report reveals which file classification can access.

Version 3.0 will be shipped to all supported customers for no charge. Securepak pricing ranges from \$495 to \$9,985. Volume licensing is also available.

Denax
Suite 500
999 Baker Way
San Mateo, Calif. 94404
415-341-9017

Applications packages

Data 3 Systems, the IBM-compatible applications division of Ask Computer Systems, Inc., has announced a bundled system of manufacturing and financial software that is tied together with IBM AS/400 Model 400 hardware.

The system was designed for small companies that previously could not afford to buy such a manufacturing resource planning II system. It combines Data 3's native-language SIM400 manufacturing and financial software with IBM AS/400 Model 10 hardware to offer support for up to eight users. The product is available for \$83,000.

Data 3
P.O. Box 441
2544 Cleveland Ave.
Santa Rosa, Calif. 95402
707-528-6560

Minx Software, Inc. has added another module to its Minxware, an information management system designed for manufacturing companies.

The Project Accounting Module, part of Release 2.3 of Minxware, provides managers and chief financial officers with on-line access to reports containing actual costs against budgets during all phases of a project, the vendor said.

The product is available for Unix platforms, including Mips Computer Systems, Inc.; Data General Corp.; and Sun Microsystems, Inc. systems. The average price ranges from \$30,000 to \$150,000, depending on the number of users.

Minx
1762 Technology Drive
San Jose, Calif. 95110
408-453-6469

NEW PRODUCTS — HARDWARE

Data storage

Concurrent Computer Corp. has introduced a 5 1/4-in. optical disk subsystem for use with its family of real-time computer systems.

The product offers a removable cartridge media with 620M bytes of data storage and provides a file management software system to support random data access.

The optical disk subsystem

may be purchased as a bundled package, which includes a 5 1/4-in. by 10-in. rack-mountable enclosure, an optical disc drive and host controller, file management and utility software, interface cables, mounting hardware, removable media and documentation.

Pricing for a complete subsystem starts at \$17,500. Concurrent Computer 106 Apple St. Tinton Falls, N.J. 07724 201-758-7000

Fujitsu America, Inc. has announced a 5 1/4-in. Winchester disk drive that supports asynchronous and synchronous small computer systems interface (SCSI) transfer rates of up to 4M bytes/sec, using a proprietary SCSI protocol chip.

The M2261 415M-byte disk drive offers an expected mean-time-between-failure rating of 200,000 power-on hours and a 16-msec average positioning time, the vendor said.

The drive includes a 64K-byte buffer that supports full caching capabilities such as Read Ahead, Differential and single-ended driver/receivers are also offered.

The M2261 disk drive is available now for production-level requirements. It is priced at \$1,655.

Fujitsu America
2500 Orchard Drive
San Jose, Calif. 95134
408-432-1300

I/O devices

Laser Science Imaging Corp. has announced an enhanced version of its 2.5-inch, high-resolution LNO3 Emulator for the Xerox 4045 Laser Printer.

The LNO3 Personality Cartridge enables complete emulation of DEC's LNO3, including LNO3 fonts, and operates on the Xerox 4045 Models 150 and 50. The emulator costs \$495.

Laser Science Imaging
1061 S. Melrose Ave.
Placentia, Calif. 92670
714-632-6941

Power supplies

Data General Corp. has announced a line of uninterruptible power supplies (UPS) that are available in power ratings from 350 VA to 1,000 VA.

The on-line peripherals were designed to insure electrical power to computer systems and provide from eight to 100 minutes of reserve power when normal utility power is lost during brownouts or blackouts.

Prices for the UPS systems begin at \$735 for the 350 VA device and \$1,550 for the 1,000 VA unit. Quantity discounts are available, and first shipments to resellers and end users reportedly began in March.

DG
1400 Computer Drive
Westborough, Mass. 01580
508-366-8911

PCs & WORKSTATIONS

MICRO BITS

Patricia Keefer

Trials and errors



Nothing succeeds like success. Apple Computer invites stamped "Confidential." Apple eyes

only were designed to lure the pesky press to an April 11 luncheon featuring "The Secrets of Apple's Success." Given the current status of Apple's sales and earnings picture, we assumed the first 50 rows — complete with notebooks and pens — were reserved for Apple employees. (If not, someone might want to suggest to Apple that if it still has any success secrets up its sleeve, it might be best to start unveiling them a little closer to home.)

Whip out your Notebooks II. Last fall, when Lotus Development unveiled Notes, its \$62,000 groupware package, Lotus Senior Vice-President Frank King admitted that the company had no idea how to handle marketing and support. The initial plan was to sell Notes direct and to scope out systems integrators and value-added resellers. A spokeswoman said Lotus will not offer the complex package through another company. At an internal

Continued on page 45

Buyers win software price wars

BY CHARLES VON SIMSON

CVS107

Only suckers pay retail, especially for personal computer software.

As it becomes more and more difficult for vendors of PC applications to differentiate between products, price has become the major competitive weapon. In the past few months, major software publishers — notably Microsoft Corp., Borland International, Ashton-Tate Corp. and Lotus Development Corp. — have been putting on one red-tag sale after another in an effort to move customers from a competitor's platform onto their own.

Borland instigated the latest round of price-slashing with its recent offer of a \$149.95 upgrade of its Paradox database, normally \$725, to registered owners of any version of Ashton-Tate's dBase or Microsoft, Inc.'s R-Base, along with database products from dBasease or Fox Software, Inc.

At the same time, Lotus, Microsoft and the rest have been aggressively discounting spreadsheet upgrades, offering versions of 1-2-3, Microsoft Excel and Borland Quattro Pro priced at about \$100 to users of competitive products.

More to come

At large customer sites, even those prices may be soft, and even deeper discounts may be negotiated. Borland Chairman Philippe Kahn cited one recent win over Lotus in a case in which Borland sold a Lotus user 50 Quattro Pro licenses. He claimed

that Lotus then tried to give the customer free 1-2-3 packages but that the user declined the Lotus counteroffer.

That type of price-cutting is widespread, Kahn acknowledged, saying that it is an important weapon. "We are fortunate that the cost of materials in our business is low, and we can let the market dictate prices," he said. "Ultimately, competitive pricing works to the benefit of everyone."

Trying to gain market share for its Framework and Applause products, Ashton-Tate has offered licenses at 80% off suggested retail prices.

Discounting is not only a competitive necessity. There can be a strong payoff for the vendor. Adobe Systems, Inc. recently offered its Adobe Type Manager product at a price substantially below the normal price for font libraries. The product sold more than 100,000 copies in the first six weeks. "The volume more than made up for the lower price in terms of profitability," Adobe Chairman John Warnock said.

"We didn't realize how price-sensitive sales were. It has made us rethink our pricing strategy." While bigger accounts have more clout, there is no need to buy a large number of licenses to

get a cut-rate price. "Even at Egghead [Discount Software stores], the real price on Paradox is about half of list," said Harold Pollard, PC manager at Urbe and Associates, an environmental consulting firm in Oakland, Calif. "We don't buy anything unless we are getting a major cut in price."

However, some vendors are not so sure that attitude is appropriate. "One of the reasons that users do not perceive the true value of software products is that the prices are constantly being heavily discounted," Lotus President Jim Mani recently told the Software Publishers Association in a speech to members. "It is important not to give the impression that there is no absolute value."

Controlling accounts by keeping customers on a platform is

Continued on page 46

IBM posts record year for worldwide PC sales

BY RICHARD PASTORE

CVS108

NEW YORK — IBM's personal computer group closed out the 1980s with a banner year — claiming worldwide unit shipment growth of 24% and sales growth of 19% over 1988.

"1989 was our best year ever, worldwide, for PS/2 shipments and revenue," James Canavino, IBM's vice-president and general manager of the Personal System/2, told securities analysts here last week.

Canavino went on to say that

he expects sales percentage growth in the midteens or better this year. "I don't expect the industry to grow as fast as it did last year, but IBM will gain share," he predicted.

The supply constraints that have bedeviled PS/2 shipments have eased, he added. "We've gone from having 67% of our system units constrained to just 6%," he said.

One supply stickler that remains is the 60M-byte hard disk drive, which restricted the PS/2's availability in the first quarter of 1990. He said that the

problem should be eliminated by the end of the second quarter.

IBM has also made strides in on-time PS/2 shipment. "Once we set a schedule, we now ship 99% on time," he noted. That is up from just 75% last year.

Canavino also applied the beams on some new non-PC Channel Architecture PS/2s. Based on customer demands, "you're going to see us bringing out new machines at the low end based on the AT bus," he told analysts.

On the software side, Canavino took time to quash rumors that IBM would code OS/2 Standard Edition development to Microsoft Corp.

"Contrary to what you've seen in the press, this is still very much a joint development effort," he stated.

Micro Focus brings 370 Assembler to the PC!

The Micro Focus 370 Assembler is a tool which helps maximize the productivity of both the mainframe Assembler programmer as well as the COBOL programmer whose application calls Assembler subroutines.

Micro Focus 370 Assembler allows PC development and maintenance of host based Assembler and mixed COBOL/370 Assembler applications when used with Micro Focus COBOL/2 Workbench. The full featured Assembler programming environment includes:

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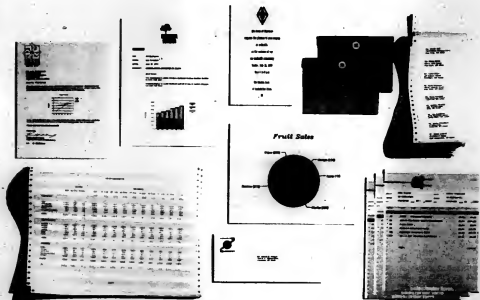
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PRODUCT REVIEWS

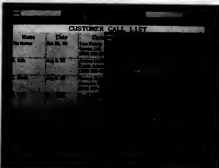
What you see isn't all you get with Formbase

Xerox Corp.'s Formbase is a relational database management program that allows users to produce and print colorful what-you-see-is-what-you-get forms. It runs under Microsoft Corp.'s Windows.

The layout mode provides full access to all Formbase features. To create a form in a new database, the user actually defines the database structure. Fields are separated into captions and field data, which can be customized individually with back-

the Windows Clipboard. The sample image files provided with Formbase include pictures and symbols that can be transferred to any database.

Although data can be entered in layout mode, the typing mode prevents the user from changing the form's design. There is a complete variety of field operators and special functions, such as Sum, If, Case and date and time functions. Validation formulas prevent the user from entering incorrect data, but they



Xerox's Formbase makes cutting and pasting easy

ground and text colors, lines, boxes and shading attributes.

Grid options include line, medium, coarse or none, but the grid is not displayed on-screen. There is no ruler, either, although there is a measurement box that indicates the precise alignment of selected fields. A variety of field types are available, including calculated, lookup and protected fields. Custom Help messages can be created for fields, and fields can include graphics but are restricted to those that can be imported via

can be overridden. There are 50 predefined functions for text and number manipulations. Manipulation features include the capability to filter records and save the found records to a new database file. Searching is fast, but sorting can be slow.

One advantage Formbase has over the drawing-oriented forms applications is that once the data is entered into the database, it is available to any form or field the user creates. Each view of the database is a form that can dis-

Continued on page 47

Laserjet III's myriad qualities

HP's latest combines speed with high-quality graphics and text printing

Dedicated to retaining its leadership position in the laser printer market, Hewlett-Packard Co. has produced the Laserjet III, featuring on-the-fly font scaling with the fifth generation of HP's page control language, faster graphics printing speed and HP-GL/2 vector plotter language support.

The Laserjet III comes with 1M byte of random-access memory, upgradeable to 5M bytes. It also includes eight internal scalable typefaces in two families in addition to the same 14 internal bit-mapped fonts that come with the Laserjet IIP and IID. Special font effects such as shadowing, mirroring and patternizing are possible, and multiple orientations of both text and graphics can be printed on the same page.

The Laserjet III uses the Canon, Inc. Canon SX engine with a 12,000 pages/month duty cycle. It includes serial and parallel interfaces and two cartridge slots. The paper input tray holds 200 sheets.

Options galore

According to HP, a cartridge will be available this month for upgrading the Laserjet III to Adobe Systems, Inc. Postscript support. Epson America, Inc. FX and IBM Proprinter resolution in cartridge form will also be available soon. As with previous Laserjets, myriad other options, such as HP's own soft fonts, font cartridges, personality cartridges and paper trays, are available.

As with font cartridges, the Laserjet III is backward-compatible with the Laserjet Series II and other Laserjet printers. The Laserjet will be compatible with

the Apple Computer, Inc. Macintosh when HP releases the Mac version later this spring. It will include an Appletalk interface, the new Postscript cartridge and 2M bytes of memory.

With the scalable font capabilities provided by Agfa-Compu-

streaking or toner dropout, and halftone images look smooth and clean.

Laserjet III documentation is presented concisely, attractively and intelligently. The new setup guide makes setup easy and fast.

The control panel on the Laserjet III features raised buttons. The output hopper is deep, the 200-sheet paper tray is contoured for easy removal, and the one-piece consumables are easy to work with. The Laserjet III is solidly built, with no last-minute fins or changes to circuit boards.

Hewlett-Packard provides a one-year warranty for the Laserjet III as well as free (not toll-free) telephone support during regular weekday business hours.

HP's Laserjet III produces incredible output and includes the new PCL 5 page description language as well as HP-GL/2. It prints graphics faster than its competitors, and there are a lot of available options, all for



HP's Laserjet III excels at printing both graphics and text

graphic Corp.'s Intelligent technology, fonts can be scaled from one quarter of a point up to 999.75 points, in quarter-point increments. Like Postscript, the Intelligent scaling technology includes special "hints" that enhance font outlines.

Resolution enhancement technology pushes 300 dot/in. output virtually to its limit. This system adjusts the position of the dots to smooth their appearance on the printed page. This is accomplished using a proprietary application-specific integrated circuit that examines incoming data and scrutinizes each dot's position in relation to the adjoining dots. The dot is then moved or printed smaller to produce smoother, sharper output. This capability can be disabled if third-party add-on boards conflict with it.

The Laserjet III excels at printing graphics and text in terms of both speed and quality. In addition to the enhanced resolution, there is little trace of



\$2,395 — which is \$300 less than the cost of the HP Laserjet Series II.

Hewlett-Packard Co., 19310 Friessridge Ave., Cupertino, Calif. 95014; (800) 752-6900.

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WE MAKE IT HAPPEN

Clones gain market share and respect

ANALYSIS

BY RICHARD PASTORE
CW STAFF

The term "clone" has been so reviled in the personal computer marketplace that Compaq Computer Corp. North America President Mike Swarthy has been known to bite the heads off those who refer to his machines as clones.

Compaq aside, clone vendors — particularly the second-tier makers — and the PCs they make are earning more respect these days. Why? Simply because

they now represent the fastest growing segment of the PC market, observers agreed. "IBM has been losing share, but not to folks like Compaq and Apple — they've been losing share to all those folks called 'other,'" said Dan Ness, an analyst at Computer Intelligence in La Jolla, Calif. IBM's share has dropped about 5% over the past three months, he noted.

Meanwhile, IBM claimed its sales have soared (see story page 39). Other analysts said clone makers have been siphoning market share from the establishment players for years. "Over the last couple of years, most major vendors

have lost market share. The fastest growing segment has been 'other,'" said Bill Lempiess, an analyst at Dataquest, Inc. in San Jose, Calif.

Recent developments could gain clones significant ground in the coming months, observers said. Several second-tier vendors — most notably AST Research, Inc., Everex Systems, Inc. and Advanced Logic Research, Inc. — have begun closer quality and performance parity with top-brand machines, analysts said. For instance, AST has distinguished its boxes with a relatively unique upgradable architecture. It was also among the

first to release an Intel Corp. i486-based PC.

Despite their gains in value-added technology, clone vendors' prices are still 25% to 40% less than those of IBM and other top-tier makers, said Stephen Smith, an analyst at Paine Webber, Inc. in New York. AST's Premium 386/33 costs about \$3,000 less than a similarly configured Compaq Deskpro 386/33, for example. "IBM has been trading on the fact that their products are somehow superior," Lempiess said. "More users are beginning to realize that's not necessarily the case, and they're not willing to pay the higher prices."

Users are also more PC-sophisticated and confident than in the past, analysts agreed. They no longer need their hands held by an IBM, Ness said. The upshot of all this is that the second-tier vendors as a group have been and should continue to be the fastest growing segment of the PC marketplace. Everex's market share, for example, shot up 112% from December 1989 through February 1990, according to Storeboard, Inc. in Dallas. AST's share recently grew from 3.7% to 5.5% in just one month.

Users bear out analysts' findings. At Portland, Ore.-based wood products firm Louisiana-Pacific Corp., 75% to 80% of its 500 PCs are clones. It owns no IBM PCs. "I can't justify the cost; the value is just not there," said Melvin Boyer, director of information systems.

"I would never buy an IBM machine because of the difference in value you get for the price," added John Quass, data processing manager at Rockwell International Corp.'s Rockwell Graphics Systems in Cedar Rapids, Iowa.

Costly all around

Clone users also eagerly pit their machines' quality against IBM's. Don Race, IS director at Cedar Fair LP in Sandusky, Ohio, an amusement-park holding company, said his Wyse Technology, Inc. PCs have not needed servicing in the three years he has owned them. Conversely, he added, "My IBM PC has broken once a year since I've had it. IBM was more costly to start with, and it's been more costly to maintain."

Better dealer support is another factor boosting clone sales. "Before, all you got was a system. Now vendors like AST and Everex are growing up and providing higher levels of support" through their dealer channel, Ness said.

Smith noted that not all clone makers have made improvements in their dealer channel. "Foreign vendors haven't really got their distribution act as together as some of the U.S. guys," he said.

Also, not all users were willing to trust the clones. Seminole Electric in Tampa, Fla., buys only IBM — primarily to guarantee compatibility with an IBM Token-Ring network. "We look at the difference in cost as payment for that reliability," director of IS William Cross said.

Indeed, compatibility has been the stickler that once kept many buyers from the clone market. Those issues have been largely resolved, observers said. However, others cautioned that the more sophisticated 32-bit software, peripherals and connectivity now coming out of the labs could resurrect incompatibility issues on high-end Intel 80386 and 486 clones. "The 32-bit software is a whole other ball game; I don't know how some of the clone manufacturers are going to hold up," said Joe Ann Stabel, president of Storeboard.



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Network Systems.

KPMG builds tool box with Hyperpad

ON SITE

BY SALLY CUSACK
CW STAFF

MONTVALE, N.J. — Twenty months ago, international consulting giant KPMG Peat Marwick launched its Technology Resource Center, a division tailored to tie management and technical consulting services into one neat package.

"We needed internal tools to supplement consulting capabilities in the computer-aided software engineering area," recalled Jules Ghedina, principal in charge of the center. "One of the things we were looking for was a Hypercard-like prototyping model for the DOS platform."

The company found its answer in Hyperpad, an object-oriented application development tool from Brightball-Roberts &

Co., Ltd., in Syracuse, N.Y. Using Hyperpad, the center was able to develop an automated application engineering facility, AE/Platform, for standard MS-DOS workstations.

Hyperpad is a character-based package capable of running on any IBM Personal Computer or compatible. It was reportedly designed to let users and developers prototype software, set up databases and develop computer-based training-type applications.



Peat Marwick's
Ghedina

AE/Platform supports the implementation of KPMG's AE/95 program, an environment that demonstrates integrated tools, techniques, management and methodologies to the firm's software application development clients. These demonstrations are a key function of the center, and the company runs a number of CASE seminars as well.

Development of the AE/Platform was

an international effort. Ghedina said, requiring between six and 10 full-time employees and 10 to 15 additional people on a part-time basis.

Ghedina noted that when CASE was first introduced, the main word was productivity. "Nowadays, it is standardization, quality and productivity, strictly in that order," he says. The AE/Platform is a CASE product on the management side as opposed to the activity side, he added, with emphasis falling on standardization.

"When conducting CASE evaluations for our clients," Ghedina said, "we assess the client situation to determine the level of readiness. Then we demonstrate CASE tools. We probably have between 15 and 20 copies of different CASE packages on file."

The Montvale location also offers an extensive demonstration lab, which reportedly includes an IBM mainframe running MVS/VM/ESA and one operating under DOS/VSE. KPMG is an IBM Business Partner, and there is an IBM Application System/400 on-site, as well as several IBM Personal System/2s and Personal Computer ATs.

In addition, the lab provides Apple Computer, Inc. Macintosh machines and an OS/2 LAN Server. The firm will be taking delivery on a Digital Equipment Corp. VAX machine in the near future, and Ghe-

dina indicated that there are several networking projects under way to enable internet/network demonstrations.

In addition to the AE/Platform, the center has created several other internal tools with Hypercard, including programs that provide a common menu of development applications in a work group setting, software that employs a plug-and-play concept across standards, and an application development life cycle structure.

"Managing change in a corporate world is difficult," Ghedina said. "Our goal is to increase quality by changing the way organizations deal with the development process."

The resource center, staffed with 25

KPMG Peat Marwick

professionals of mixed technical and financial backgrounds, provides technical support, develops applied research initiatives relating to the technical consulting end of the business and maintains relationships with a variety of outsiders, including vendors, universities and user groups.

KPMG has traditionally provided accounting, auditing, tax and management consulting services to organizations, institutions and individuals both in the U.S. and abroad. Listing \$4.3 billion in revenue for 1989, the company operates in 115 countries and employs approximately 6,000 consulting professionals, 3,000 of whom specialize in information technology.

Keefe

CONTINUED FROM PAGE 39

meeting two weeks ago, Lotus instead launched the Lotus Notes Alliance Partner Program, which will be folded under the Lotus Consulting Services group, which debuts in June.

Under this program, Lotus is working with systems integrators who will help Notes users get networked and provide extended service and consulting support. "In the next couple of weeks, we will announce a handful of [certified] Notes partners," the spokeswoman said. Price Waterhouse is said to be one.

Save those rotten tomatoes. The delay in delivering Windows has not only created embarrassment for Microsoft but also frustration for some exhibitors at

MUM REMAINS the word over at Lotus regarding reports that Manuscript will be sold off this spring.

a combined supernicore and Windows show slated for this Friday and Saturday on the West Coast. Of course, Microsoft has moved that date to May 22.

"These people were told by Microsoft that Windows 3.0 would be ready by then and that they could demo their compatible software," claimed Carol Patton, publisher of "Acknowledges," a Windows newsletter. Now developers who signed up are concerned they won't be able to show their Windows 3.0 applications, she said. "There are a lot of people swinging in the wind right now," one developer agreed.

Don't even ask. Mum remains the word over at Lotus regarding reports that Manuscript will be sold off this spring. King declined to confirm or deny the reports, saying only that Lotus "contin-

ues" to support Manuscript. "It continues to sell well; we had a nice uptick in the fourth quarter." King's lips were also zipped over a mention by Pinar's marketing director that Lotus is considering embedding Pinar's Renderman — a three-dimensional scene description interface used to make computer-generated images — into Lotus 1-2-3.

Cutting corners? Microsoft has been getting hammered by some developers over its decision to put all the operating system and program development support for the OS/2 Software Development Kit Version 2.0 on-line. American Business Computer Development System, Inc. was not amused, especially after shelling out \$2,600 for the tool kit.

The firm has this idea that it shouldn't have to devote a support person to printing out the enormous number of pages and then collating and binding the manual. "For \$39, one expects a diskette with a Read Me file, a doc file and a program. For \$2,600, one expects and insists on a printed manual," said Gary Hoff, vice-president of engineering. We have to agree.

Come and get me. Adam Osborne, who recently resigned as a director of the beleaguered Paperback Software International, is looking for capital to back a new artificial intelligence venture that will be split between India and the U.S. Asked where he plans to reside, Osborne said he'll split his time between the two countries unless he is sued again, in which case his tormentors will have to come find him in his homeland — India.

You can't be too thin... Savvy Microsoft has moved to position Excel as a more svelte option, claimed Nancy McSharry, an analyst at International Data Corp. in Framingham, Mass. The arrival of 1-2-3-45, of course, affords users their first opportunity to benchmark the two spreadsheets against each other on a level playing field.

Keefe is Computerworld's senior editor, PCs and workstations.

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Open Look fights tide of favor for Motif

ANALYSIS

BY JAMES DALY
OF STAFF

Summer is still a few months away, but it may not be too early for the folks at Sun Microsystems, Inc. and AT&T to don their swimming trunks. By the look of things, it's going to be a long summer for both companies as their Open Look graphical user interface feels the heat from a steady show of support for the Open Software Foundation's (OSF) Motif standard.

While all three of the chief Unix interface contenders — Motif, Open Look and newcomer Next, Inc.'s Nextstep — still remain viable, observers say the momentum toward creating a de facto standard has clearly shifted toward Motif.

While Sun and AT&T could suffer financially from the lack of Open Look support, users should see little impact. Because both Open Look and Motif are based on the X Window System and Unix standards specified by X/Open, the differences between the two are largely a matter of personal preference.

"Open Look is on its way to becoming a great trivia question," said John Logan, director of professional systems research at Forrester Research, Inc. in Boston.

The hard numbers, for one, are pretty damning. OSF/Motif technical manager

Kathryn Birbeck claimed that 120 companies have announced OSF/Motif products or have products under development, while another 600 have licensed Motif's source code.

Meanwhile, AT&T's Unix Software Operation says only 23 hardware and systems software vendors have committed to shipping products incorporating Open Look.

Sticking ships?

Even among its supporters, Open Look sometimes looks like a leaky boat. Last year, Unix International backed off from supporting Open Look. Also, AT&T conceded that the interface would definitely not be bundled with the next release of its Unix System V.

"It's not that Open Look is unacceptable, but AT&T needs DOS clients and Motif is designed expressly for Unix," said Maggie Connor, an analyst at International Data Corp.

Analysts said more developers have rallied around Motif because it bears the closest look-and-feel resemblance to IBM's OS/2 Presentation Manager graphical interface, which allows users to see nearly the same environment across several operating systems, including DOS, OS/2 and Unix. And in the computer industry, familiarity breeds contempt.

Analysts also said it is no more difficult to switch interfaces than it is to get into

another car and drive it. "This battle is like cars trying to distinguish themselves on the looks of their dashboard," said Richard Schaeffer, founder of the Technology Partners consulting company in New York. "Anyone who knows how to work one can switch in a matter of moments to the other."

The problem, instead, lies with developers reluctant to work on two user interfaces at once. But even bridging that gap has become easier. Software has licensed a product called Object Interface Library, which reportedly allows developers to build an application without having to choose between Motif or Open Look.

Open Look supporters conceded that their current efforts have been less than they had hoped for, but said their efforts will ultimately reach fruition. "We're involved in a seeding process," said Dick Gorman, Sun's director of software products marketing.

Ultimately, however, most analysts fear that current efforts may not be a force Sun to break Open Look so that it behaves more like Motif. "Sun goes where the customers are, and the company is better at swallowing its considerable pride than almost any firm I know," Schaeffer said.

Others aren't so optimistic. "Two or three years from now, Open Look will have disappeared," said George Schussel, president of Digital Consulting in Andover, Mass.

MICRO NOTES

Apple users meet this week

The National Apple User Group (NAUG) will hold its annual conference, called the NAUGC, for user-group leaders April 20-22 in Arlington Heights, Ill. NAUGC is sponsored by Interchange, a consortium of Midwestern Apple Computer, Inc. Macintosh and Apple II user groups. It was also announced that America Online will be the official on-line service of the show.

A recent report from The Sierra Group, Inc. shows a notable increase in personal computer purchasing plans among the Fortune 500. The increase is attributed in part to support for the client/server model.

According to the Tempe, Arizona-based research, PCs will see a growth rate of 53.6% in 1990. When viewed in terms of the number of units planned for purchase, Sierra said the growth is dramatic and indicates that

the PC market has not yet reached saturation.

Apple has introduced new customer training programs under the label of Macintosh Learning Station Curriculum. In addition, users can now choose to take these courses from among a greater number of authorized trainers. Apple has increased the number of course providers from 27 to 135. To obtain the names of course providers, users can call 800-732-5131 ext. 300.

M-USA Business Systems, Inc. said it will donate \$135 million worth of Pcioli, its new networkable desktop accounting software, to U.S. colleges and universities. Additionally, licensing fees will be waived by Dallas-based company so that the software and its companion teaching manual and training video may be reproduced for each student's personal study.

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Mozart plays the crowd with 2.0

BOSTON — Mozart Systems Corp. took advantage of the recent SAA World Conference here to preview additions to its Mozart application development tools.

Version 2.0 of Mozart reportedly enables developers to build cooperative processing applications that are directly transportable between DOS and OS/2 Extended Edition without modification.

Available this quarter, Version 2.0 is available for Extended Edition's Presentation Manager, DOS graphics and DOS character-based development environments. Also featured is added IBM Systems Application Architecture/Common User Access (CUA) standards compliance and a relational database management system interface via embedded SQL.

Mozart for OS/2 supports native Presentation Manager applications using Presentation Manager-supplied CUA objects, uses Extended Edition's interprocess communication facilities and runs as a full multitasked OS/2 program. Single-user licenses for Mozart DOS and OS/2 Presentation Manager are \$5,000 and \$6,250, respectively.

Price wars

CONTINUED FROM PAGE 39

critical in the software business. With business strong, the vendors can afford to take the hit to keep the installed base installed.

All major developers except Ashton-Tate continue to see strong growth and can afford to hammer margins to stay in accounts.

According to a recent survey of major PC software companies given by Smith Barney, Harris Upham & Co., Ashton-Tate is the only major developer not expected to grow by at least 25% for the current quarter over the same period a year ago.

Ashton-Tate's revenue is expected to be off by one-third, while Microsoft is expected to grow by 50% and Lotus by 33%.

While locked into slashed upgrade and retail prices, vendors are trying to take a harder line on some aspects of discounting.

Microsoft, for example, does not offer volume discounts on royalties. "There are not really any economies of scale for us, so volume doesn't matter," said Scott Oki, executive vice-president for U.S. marketing and sales at Microsoft.

Toshiba's T3100SX laptop is sturdy, usable

Toshiba America, Inc.'s T3100SX laptop boasts a gas-plasma display compatible with the IBM Video Graphics Array (VGA) standard and provides nearly three hours of battery life in a 14.6-pound package (11.6 pounds without the batteries).

The T3100SX comes standard with an Intel Corp. 80386SX processor running at 16 MHz with 1M

byte of random-access memory (RAM), expandable to 7M bytes in 2M-byte increments or to 13M bytes in 4M-byte increments. Part of the RAM can be reserved to hold a copy of the system read-only memory (ROM). A 40M-byte hard disk and 1.4M-byte 3½-in. floppy disk drive are also standard, as are a combination parallel and external 5¼-in. disk-drive port, two nine-pin RS-232C serial ports, a VGA-compatible red-green-blue port, a socket for an Intel 80387SX numeric coprocessor and a connector for an external 17-key numeric keypad or 101-key enhanced keyboard adapter.

A proprietary Toshiba 16-bit expansion slot supports such accessories as network and modem cards and an adapter for a five-slot external expansion chassis that accommodates 8-bit expansion cards. In addition, a 2,400 bit/sec. modem can be

installed internally, leaving the expansion slot free. The built-in 7.8 by 5.8-in. gas-plasma display supports high-resolution VGA and operates in IBM Enhanced Graphics Adapter and IBM Color Graphics Adapter modes; it can also drive an external VGA monitor.

The T3100SX is shipped with Microsoft Corp.'s MS-DOS 4.01. OS/2 is optional. Other utilities included are for setting the system configuration and display modes, a hyper-text DOS and user manual, Quarterdeck Office Systems' QEMM-386 expanded-memory manager and Multisoft Corp.'s PC-Ewik Power Pak with disk cache, external disk spooler, screen accelerator and screen saving utilities.

There is a built-in resume mode that allows operation to be suspended at any point by shutting off the machine. All RAM is saved, so even programs using expanded or extended RAM can resume. Additional battery optimization tools include three independent utilities that allow separate control of the screen, disk-drive and processor "sleep." A built-in pop-up program allows the user to monitor battery charge and modify power-saving options on the fly.

The high-contrast gas-plasma 640-by-480-pixel VGA display is a real treat. The display is clear and readable from a wide viewing angle in all kinds of ambient light. The response rate is fast without a trace of flicker or ghosting. Toshiba provides a software utility for controlling the way color is simulated through varying brightness among 16 available levels.

The T3100SX, with its standard two batteries, runs for about three hours. With the machine off, both of the on-board battery packs recharge in as little as three hours.

The 86-key keyboard is reasonably complete, lacking a full, separate numeric pad but including separate keys for each of the major cursor control functions.

Detailed documentation

The T3100SX's documentation is full of details and illustrations. It covers all the essentials of ordinary operations as well as setup for both hardware and MS-DOS, and it includes a hardware reference manual, an MS-DOS reference manual and the MS-DOS user's manual.

Setup takes about 20 minutes. The fine battery life, display, keyboard and on-line Help all add up to an eminently usable machine. The display is relatively easy to remove, so it is simple to adapt to a desktop setup. The internal modem and the external monitor and keyboard connections are icing on the cake.

Workmanship is admirable — the case

is sturdy, the display hinge is solid, all components are well shielded, and internal layout is clean, without any visible patches. The handle is sturdily attached and covers the connectors on the rear of the machine when it is not being used as a back prep. All other connectors are protected behind hinged covers. The batteries are easy to insert and remove and, like all other parts, fit snugly.

Toshiba offers a one-year warranty which includes next-day turnaround on repairs and return by next-day air at no additional cost. A two-year extension is available for \$649. Telephone support is available through a toll-free number.

The combination of features available in the T3100SX simply is not available elsewhere at any price. At a list price of

Toshiba T3100SX	
	Price: \$5,999
• Performance:	Very good — excellent
• Documentation:	Excellent
• Setup:	Excellent
• Size of case:	Very good
• Serviceability:	Very good
• Support:	Excellent
• Value:	Very good

\$5,999 for the base machine, the T3100SX is by no means cheap, but it is a very good value compared with its competitors.

Toshiba America, Inc., International Systems Division, 9740 Irvine Blvd., Irvine, Calif. 92718; (800) 457-7777.

Formbase

CONTINUED FROM PAGE 41

play and print the data in any way. A view catalog displays all views, forms and fields in the current database. Forms can include mailforms, tables and subtables with repeating records such as inventory items for an invoice.

Data can be looked up in other database files by field or with a variable, which can look up all fields in a form based on one field entry. Sensitive files and views can be password protected. Records from one database can be appended to another, or two database files can be joined.

Formbase can transfer ASCII text, Lo-

terence guide.

Formbase can be intimidating to a novice. As with any relational database, it works best when an experienced user creates the database and forms for others to use. Once set up, users should have no trouble entering, manipulating and printing data. Creating a database file and fields is easy. Creating a form is as easy as typing a name for it and hitting the Enter key. It is also easy to cut-and-paste data from one record to another. Formbase does not have a programming language but does include macro recording and playback.

Installation takes about 20 minutes. A run-time version of Windows is included. Formbase uses about 3M bytes of disk space for the necessary program files — additional tutorial, sample and font files can bring that total up to 5.5M bytes.

Error messages are generally helpful and are listed in detail in the reference manual. The program prompts users to save forms and database files whenever the screen is cleared or a new view or file is loaded. In addition, Formbase automatically makes a backup file of a database when it is opened.

Xerox provides free (but not toll-free) support for 60 days. After the 60-day period, there are extended support options. The support staff is helpful and knowledgeable.

Although \$495 might seem like a lot of money to pay for a forms program, Formbase is also a relational database that can create and print data entry forms and reports with graphics and fonts. Anyone with some database experience will find it easy to learn, use and set up for others, all without writing any code.

Xerox Desktop Software, 9745 Businesspark Ave., San Diego, Calif. 92131; (800) 822-8221, (619) 695-7891.

Xerox Formbase Version 1.0	
	Price: \$495
• Performance:	Very good — excellent
• Documentation:	Very good
• Ease of learning:	Good
• Ease of use:	Very good
• Error handling:	Good
• Support:	Poor — satisfactory
• Value:	Very good

tus Development Corp.'s WK1 and Ashton-Tate Corp.'s Dbase, dBase files and of three types of input: automatic and controlled.

The Formbase package includes Bitstream, Inc. fonts, which produce attractive output. Other Windows-supported fonts can also be included in forms. Although printing can be slow, Formbase supports dot-matrix and laser printers, along with any Windows device.

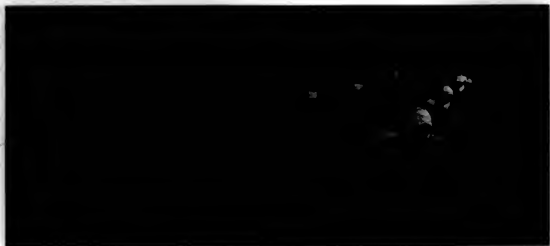
The documentation is extensive. It includes an installation guide, a training guide, a reference manual and a quick-ref-

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Word for Windows also lets your users keep the equity they have in their current program. Which means they can share work over the network and directly read and write files from virtually every word processing program.

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And in the interest of higher learning, Word for Windows features a built-in, computer-based training program and context-

sensitive, on-line help. So users can instruct themselves, rather than wandering the halls in search of help.

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With Word for Windows' intuitive graphical user interface, users actually see what they're doing. And corporations actually see more productivity.



NEW PRODUCTS

Systems

Altima Systems, Inc. has announced a laptop personal computer that features 640-by-480-pixel resolution and includes full IBM Video Graphics Array (VGA) support.

Altima Two VGA offers an automatic gray-scaling feature, which enables a video signal to automatically map VGA colors up to 32 gray levels. It includes a 3½-in., 1.44M-byte floppy disk drive and a 40M-byte internal hard drive with a 25-msec access time.

The product incorporates a 16-MHz Intel Corp. 80C286 processor and 1M byte of random-access memory expandable to 5M bytes.

The suggested retail price for Altima Two VGA is \$4,499.

Altima
Suite 1050
1390 Willow Pass Road
Concord, Calif. 94520
415-356-5600

ICL Business Systems has introduced two workstations that provide 32-bit processing for executing DOS programs and accessing its Unix-based Officepower applications in heterogeneous networks.

Models 50 and 55 were added to the DRS family of personal computers that run MS-DOS 3.3 at 16 MHz. Both can operate as high-end, stand-alone DOS busi-

ness systems or as platforms for ICL's Officepower networks.

The workstations are slated to be available in the second quarter of this year. The Model 50 and 55 will sell for \$2,250 and \$2,915, respectively.

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Software applications packages

National Technology Services, Inc. has announced an integrated software system that enables salespeople to produce quotes on the road.

Quotum comprises two software packages: one for an office-based personal computer and one for a Psion, Inc. Organizer handheld computer. Products and services can be entered into the PC program and then downloaded from the PC to the Organizer, the vendor said.

The PC version includes 5¼- and 3½-in. disks, and Datapak, Psion's 32K-byte memory package, comes with the handheld computer. Quotum costs \$349.

NTS
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Mt. Laurel, N.J. 08054
609-235-8500

The Powermax Co. has announced Powermax 5.1 Volumes I and II, a collection of macros that enhance and accelerate tasks done in Wordperfect Corp.'s Wordperfect 5.1.

The four-disk set includes more than 350 macros, which can be copied into a Wordperfect subdirectory and then selected from predefined menus.

The price is \$49.95 plus \$3.50 for shipping and handling. Powermax
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Encino, Calif. 91436
818-344-3438

Database management systems

Microrim, Inc. has announced its R-Base 3.0 DOS relational database management system.

Version 3.0 features a task-driven, pull-down menu interface, providing users with a graphical map for managing data. It also offers 64K bytes of ANSI Level 2 SQL. Single- and multiuser systems need an IBM Personal Computer XT, AT, Personal System/2 or compatible with PC-DOS Version 3.1 or higher and at least 640K bytes of random-access memory.

R-Base 3.0 reportedly began shipping on March 30 for \$725. Microrim
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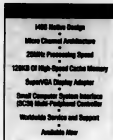
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NETWORKING

DATA STREAM

Elisabeth Horvitt

Look before you leap

Trying to map out a corporate buying policy before the particular type of technology that you're buying has matured can be risky. One of the major hazards is that you have to do a lot of guesswork about which products are going to meet your company's long-term needs and which ones will turn into dinosaurs long before you've had a chance to properly depreciate them.

This is particularly true of network servers right now. The market is in shakeout mode; there are too many different roads to the same approximate destination with few clues about which of those paths will be dead ends a couple of years hence. And vendors are introducing exciting capabilities that require a lot more in-house work to implement than is apparent from the brochures.

Many of corporations have ripening plans to set up local-area network client/server platforms that will handle increasingly critical and strategic applications — with or without mainframe backup. The technology is now here to make such a move feasible. Ask the infor-

Continued on page 62

Group threat to Soderblom dims

BY JOANIE M. WEXLER
OF STAFF

The prospects of Fiber Distributed Data Interface (FDDI) vendors initiating a class-action lawsuit against the holder of the U.S. patent for token-passing technology are dimming, although outcry over the patent persists.

FDDI is an emerging high-speed local-area network that

uses the token-passing access method.

Greg Chesson, chief scientist at Silicon Graphics, Inc., in Mountain View, Calif., acknowledged that in recent months he has asked several FDDI colleagues in the industry to join him in a fight against the patent if he could persuade his firm not to sign a licensing agreement with the inventor.

Chesson said, though, that

Silicon Graphics has since decided it will probably sign with token-passing patent holder Olof Soderblom, and "it is unlikely" that a class-action suit will ever come to fruition.

Soderblom said he has not been approached about a class-action suit but admitted, "It's not a license fee collector's role to be popular." UK-based Madge Networks, Inc. is challenging the Soderblom patent in

U.S. District Court in San Francisco, where a preliminary injunction hearing scheduled for today has been delayed. In addition, an anonymous third party recently filed a petition with the U.S. Patent Office for a review of the patent.

Madge, sued by Soderblom in February for patent infringement, counteracted on the grounds that today's token-passing scheme "is an incorrect interpretation of the patent," said Ed Murray, Madge's director of North American operations. "We don't question the legitimacy of the patent, but we do question what it's applicable to."

Chesson, however, claimed the patent is invalid because the token-passing scheme was being used in hardware years before Soderblom filed for his patent in the late 1960s.

Place your bets

Murray conceded that Madge — whose whole business is tokenizing — is "betting the farm" by going to court with Soderblom, who has negotiated licensing agreements with about 50 vendors, including FDDI pioneer Fibronics International, Inc., which signed two years ago.

Patent holders generally are not required by U.S. law to license their patents, and Soderblom said that if a vendor challenges him in court and loses, he will rescind his licensing offer to that firm.

However, "depending on the overall circumstances of a case, choosing to penalize may not be permissible," noted Stan Schurgin, a partner in the Boston law firm Weingarten, Schurgin, Gagnier & Hayes, which is representing Madge in the U.S.

Continued on page 58

SECTION FEATURE: LAN INTEGRATORS

Outside help for networks

BY JULIA KING
OF STAFF

With the long-promised "Year of the LAN" now behind us, 1990 is shaping up to be the "Year of the LAN Integrator." This breed of entrepreneurial service company is pursuing a market left relatively untouched by the large systems integrators — the thousands of businesses faced with tying together a hodgepodge of installed departmental networks.

Between now and 1993, the market for outside local-area network systems support and service will increase by 15% annually to about \$2 billion, according to The Ledgeway Group, a market research firm in Lexington, Mass. During the next three years, this figure will come to represent almost 40% of the overall communications service and support market, the company says.

"The reason for this is that local-area networks are a relatively young technology," says Jeff Kaplan, an analyst at Ledgeway. "They must be designed to tie together a myriad of

personal computers, printers and peripherals. They must contend with conflicting protocols and complicated physical connectivity issues. It is these issues and others that customers need

Continued on page 58



Steve Golding

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Management council eyes network guidelines

BY JOANIE M. WEKLER
OF STAFF

From getting Coke cans off file servers to defining procedures for centrally managing remote local-area networks, the fledgling Council for Network Management is embracing the gamut of procedural issues it considers key to the "proper" management of networks.

The group, whose second meeting recently took place in Hartford, Conn., began work to establish a methodology for the technical and business management of networks similar to the formal guidelines in place in the mainframe environment.

At the meeting, the group established a committee on network operations, headed by D. Thomas Mack, manager of LAN operations for General Electric Co., which will explore areas such as change management, recoverability, communications interfaces and traffic and trouble monitoring. The committee will create a draft requirements document, to be presented at the group's next meeting in June.

A "lights out" LAN management task force, which will address controlling LANs remotely, is still looking for a chairman.

"We don't intend to be the Consumer

Reports of the networking industry," said Rick Segal, the council's chairman, who is also a technical advisor in the information systems department at The Aetna Casualty and Surety Co. in Hartford.

In fact, the group emphasized that discussion of specific products and vendors would not be part of its charter and that the group will instead concern itself with general practices and philosophies in managing networks.

"We should be telling vendors what we need to run our business—not the other way around," Segal said.

An example of a general practice was the recommendation that users install un-

interruptible power supplies and lock up file servers for mission-critical applications running on LANs.

The user companies represented at this month's meeting were GE, Norwest Technical Services, Inc., Bankers Trust Co. and Accord, a not-for-profit insurance agency. The council noted that it is going to attract a core group of about 10 user representatives to roll up their sleeves and distill feedback from any number of at-large associate members.

The council's work seems timely, given a prediction by Tucker McDonough, president of Tucker Network Technology, Inc., a consulting firm in South Norwalk, Conn., that LAN linkages will jump from 20% in 1990 to 100% in the year 2000. Currently, pointed out GE's Mack, "there is no end-to-end ownership of networks," making them difficult to manage.

"There are issues such as how do you address someone at another location who is responsible for updating tables at each LAN location, and how do you update every location when you add or delete a node," observed David Rubin, a senior consultant in the Information and Telecommunications Systems Group of Arthur D. Little, Inc. in Cambridge, Mass. "The group seems to be trying to find the best solution from several people who have arrived at independent conclusions."

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Evernet branches out

Continuing its growth-by-acquisition strategy, Syntex Systems, Inc., a nationwide network systems integration company, recently acquired its fifth value-added reseller: Communicate, Inc. in Boston. Communicate specializes in integrating local-area networks and host systems.

Further amalgamation in the network systems integration field is planned by Information Decisions, Inc. in Grand Rapids, Mich., which signed a letter of intent to be acquired by Softech, Inc., a Waltham, Mass., software and systems integration service.

The Open Token Foundation has announced the publication of "The Open Token," a newsletter designed to provide communications executives with information about technology changes, standards developments, new products and network contracts in the areas of token-ring and Fiber Distributed Data Interface networking. The newsletter is available from the foundation, located in Milpitas, Calif., at a rate of \$395 for a one-year subscription for nonmembers.

Mitek Systems Corp. and Sequant Computer Systems, Inc. have signed an agreement under which Mitek will port its IBM Systems Network Architecture connectivity products, including an LU6.2 offering, to Sequant's Dynix operating system.

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Integrators

FROM PAGE 55

outside help to solve."

The network integrator's siren song is one of service, expertise and vertical market savvy.

For one LAN manager at Electronic Data Systems Corp. (EDS), one of the nation's largest systems integration houses, going with an outside LAN integrator was a matter of expediency and service. "I went with an outside vendor, and two weeks after I called one in, the network was up and running," explains the LAN administrator, who asked not to be named. "If I had gone internally, it would have taken two weeks just to get all of the EDS people involved in the same room together."

The key to the manager's decision was to take the route that would be best for the department: "When my file server goes down, or when I have a problem, I need someone on the spot. An external vendor knows that because that's the way they make their money. Somebody on the in-house technical staff might be responsible for five other departments as well as mine, and they are prioritizing my needs against the other departments' needs."

Talking on the challenge

Expertise was the primary reason Steven Relyea at the University of California at San Diego (UCSD) turned to a LAN integrator. In 1986, when Relyea took over as vice-chancellor of business affairs, university administrators had access to a variety of mainframes and stand-alone PCs. His job was to implement a network that would not only link the various desktop resources but also tie them into the host computers.

Lacking on-campus network expertise, Relyea called in San Diego-based Integrated Analysis, Inc., which has since been acquired by LAN Systems, Inc., a New York-based LAN integrator. LAN Systems posted network service and support revenue of \$11 million in 1989.

Now, three years later, more than 40 departmental networks have been installed at UCSD. Each is overseen by an in-house LAN administrator trained by LAN Systems staffers. In turn, the departmental networks are linked over a 125-mile broadband backbone that connects 200 campus buildings.

"The primary reason we hired LAN Systems is that they had a depth of expertise that we didn't," Relyea says. "One of the additional benefits is that they helped us develop in-house expertise. Their staff helped us become more self-sufficient."

The requirement for LAN integrator companies to sell themselves apart from competitors through service and experience is crucial in the LAN integration

arena, which, according to Kaplan, is ballooning at the rate of hundreds of new firms every week.

Some of these companies are small — perhaps six or seven-person shops — and confine their activities to a few services such as stringing cable or customizing applications. Others are traditional PC and PC application outlets that, seeing a gold-

moving from a minicomputer-based environment to a network that integrates 250 workstations in Houston with telecommunications links to offices in New York, Dallas and Austin, Texas. "With that kind of response that quickly, somebody was serious about doing business with us," says Kaplan, adding that the Houston office project, which involved products from 22

large integrators at bay for long. Systems vendors such as IBM have a nationwide presence, which means they are able to service multiple user locations, whether they are across town or across the country. By contrast, many of the newer — and much smaller — LAN integrators have the resources to service only those users in their local area.

However, this is changing. Many smaller LAN integrators have teamed up with their peers in other regions to support multi-location accounts. Last year, for instance, eight companies formed a partnership known as U.S. Connect, which is based in New York and now operates in 13 major cities. The consortium was organized "to eliminate LAN players' localities of finding similar, highly experienced systems integrators in multiple cities that can handle all their computer connectivity needs," according to the companies' marketing literature.

A group such as this also offers users a single point of contact, enabling them to coordinate and track all networking activities. Such groups also provide centralized national account management, service and support.

Evernet, a venture capital-backed consortium of LAN integrators, has taken a different approach to national accounts. Rather than partnering with other integrators, the Los Angeles-based company has set out on an aggressive course of acquisition, buying out LAN service companies with annual revenues ranging from \$3 million to \$10 million.

By the end of the year, Randall Zahora, vice-president and general manager of the company's Chicago branch, says he expects Evernet will expand to include as

many as 15 locations nationwide.

"The fact that we're a single company, rather than an association of companies, and that we're backed by venture capital makes a significant difference to the end user," Zahora says. "Customers are assured that we're financial-

THE NETWORK integrator's siren song is one of service, expertise and vertical market savvy.

ly stable. Also, national accounts get a consistent level of service and support because they're dealing with only one company. In a partnership arrangement, the client must deal with multiple companies who offer different products at different price points than the Boston partner."

Fairfax, Va.-based Network Management, Inc. is another LAN integrator that has expanded by acquiring other firms. Founded in 1986 as one of the first systems integration companies to focus on LANs, Network Management's stable of acquisitions now includes CRC Systems, Inc., Programatics, Inc., Contel Network Analysis Center, The Accurate Data Group and LAN Services, Inc. Also backed by venture capital, Network Management is now a \$70 million company with 17 offices and more than 500 employees worldwide.

Regardless of how integrators choose to organize themselves, there is little doubt that they will be lacking for business, according to Kaplan. "The bottom line is that customers do not want to be their own 'Bells' anymore," he says. "Planning and designing LANs requires a level of skill which is absent in most organizations."

Go your own way

No matter how successful network integrators may be, they are not the solution for every information systems operation. Jay Hannum, vice-president for MIS at Green Bay, Wis.-based Schreiber Foods, develops his connectivity projects in-house. Hannum says the mismanagement of every user's computer and communications environment means that integrators who offer cookie-cutter integration tools, the range of which may be dictated by value-added reseller agreements with manufacturers or by manufacturers' own product lines.

"All the same rules that apply to computer resources apply to LAN resources as well," Hannum says. "Most solutions that work require experimentation to get the bugs worked out." This experimentation often requires changing in, then pulling out products from a variety of manufacturers, he notes, adding, "I don't see IBM recommending anyone else's products."

For Keith Teal, supervisor of data communications at Colonial Pipeline, Inc. in Atlanta, network projects should be kept in-house because of their complexity. Colonial's network, which ties together computers that remotely control hundreds of pipeline valves and switches, is "far too technical" for an outside integrator, he says. "We find it easier to do our network work ourselves," Teal explains.

JULIA KING

an opportunity, have expanded their offerings to include LAN integration services primarily aimed at small businesses.

Businessland, Inc., for example, claims it installed more than 80,000 nodes in a total of 6,800 LANs in 1989. In the same year, Computerland Corp., another nationwide PC retailer, reports 127,000 nodes installed in 13,000 LANs.

Business specific

For the most part, though, LAN integrators in today's marketplace are entrepreneurial types — largely from the PC world — who have targeted specific business markets. The reason? Customer demand. No longer are many users content with a service provider whose expertise is limited to networking alone. Instead, they are seeking network integrators that also know their particular line of business.

At the Houston-based law firm of Liddell, Sapp, for example, Wayne Desiring, director of computer services, went outside to Micro One, Inc., a LAN integrator specializing in law firms, whose sales are expected to hit \$10 million this year.

Desiring recalls that it took Micro One less than three days to put together a proposal for changing over the 170-attorney firm's entire data processing system. The transition involved

vendors as well as separate contractors for laying cable and setting up wide-area links, was completed in five weekends.

Less than a month later, the Dallas, Austin and New York offices were on-line.

For their part, most LAN integrators are not fooling themselves that service and vertical market savvy are going to keep the likes of IBM, EDS and other

Threat

FROM PAGE 55

When asked if he would not have a lot to lose by refusing licenses to vendors, Soderblom said that FDDI sales told by one vendor would go to another, "the source of his royalties would simply shift."

While there is some talk that vendors will discuss the patent at the American National Standards Institute's X3T9.5 FDDI standards committee meeting next week in St. Petersburg, Fla., committee chairman Gene Milligan said the issue is not on the agenda.

"The Soderblom patent is not an appropriate topic for this meeting.

We've seen that once it for me, I wouldn't think it would be much impetus now for it to become a big [industry] issue," he said.

The impetus for reawakening

the patent question reportedly could be the fact that Soderblom is charging up to \$275 per FDDI adapter card — perhaps a better licensing fee than some vendors anticipated.

One view is that Soderblom's patent ought to cover FDDI chip sets, which involve the token-passing mechanism, rather than the adapter cards on which they are mounted. Soderblom said he explored licensing the chip sets, but found it administratively prohibitive.

Soderblom invented a technique of arbitrating access to the transmission medium via passing an order character or "token" between networked stations in the mid-1960s.

Olaf Soderblom does not expect popularity

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Low-end monitor unveiled

BY JIM NASR
Covington

An early and dominant player in the high-end network analysis market, Network General Corp. recently took aim at smaller LAN sites by introducing a low-priced network monitoring system.

The Watchdog Network Monitor, which is marketed to managers of 25- to 50-node local-area networks, is the newest connection to Network General's network analyzer, Sniffer. Watchdog is priced at \$1,995 and includes software and an Ethernet board.

Sniffer analyzes performance or traffic levels of a particular protocol such as Transmission Control Protocol/Internet Protocol or Decnet, whereas Watchdog only monitors overall network and bridge/router activity. Watchdog runs on IBM Personal Computer ATs, Personal System/2s and compatibles but cannot monitor operations across bridges or routers, according to Jay Weil, Network General's director

of marketing.

As it monitors, Watchdog generates or visual warnings when a problem is perceived with any server, PC, printer or other LAN node. Network managers can set warning thresholds for each node, sounding off when a node or protocol is idle too long or is overused, Weil said. Watchdog collects numerous system data and displays it numerically and graphically.

Harry Saal, president and chief executive officer at Network General, said Watchdog is an active diagnostic tool in that it shows managers incidents of increased traffic or device use that could lead to a crash. Saal said Watchdog costs \$4,000, while Watchmaster, software that enables a PC to control several Watchdog units, have begun shipping.

Steve Spanier, a principal at Pleasanton, Calif.-based consulting firm Netrends, said Watchdog's basic functions "compares favorably" with those of other packages in the market. He singled out the product's price as beneficial to users.

Horwitt

FROM PAGE 55

ization systems managers at Echlin, Covia or Consolidated Insurance.

However, making such a move right now carries some risks, too. For example, when Covia decided to set up LAN platforms based on OS/2 and Microsoft's LAN Manager, its programmers had to fill in the gaps in functionality and multi-vendor interoperability, according to Covia Chief Information Officer Mark Telfian.

A year or two from now, various vendors' implementations of those systems would have matured to the point where those gaps would have disappeared.

Or look at the abundance of organizations that, during the past few years, moved many or all of their mainframe applications programs to Novell Netware LANs. Their choice made a lot of sense, given that Novell probably has the most mature client/server software solution around, in terms of functionality, reliability, resource efficiency and application support. But Novell's nearest competitor, LAN Manager, is only just coming into its own.

But now Novell has been ac-

quired by Lotus, which some industry sources say they feel will boost LAN Manager (not to mention OS/2) as the more viable networking platform. This is not to say that Novell is necessarily going to lose its viability. What it illustrates is the current volatility of the market and how hard it is to predict how a given vendor or product will fare over the long term.

And so, a piece of advice: If you must do a bulk purchase of LAN servers in the near future, you'd better leave yourself a loophole for shifting directions unless you're sure that every corner of networking Nostradamus who can tell exactly how LAN winds will blow during the next few years.

You also had better have at least a reasonable idea of how your company's networking needs are likely to grow and change over the next few years. Ask yourself questions such as these: Will there be a need for free distributed computing? Has my company committed to moving some or all of its applications off the mainframe, or will it continue to need good LAN-to-mainframe connections? And how will networking standards such as Open Systems Interconnect figure in my future?

Answering all of the above

questions will be a lot easier in a few years. The market will have settled down, and you'll have a better sense of the cost, potential benefits and feasibility of emerging technologies such as 100MB/sec. local- and wide-area networks and distributed computing. And all the major vendors will support all the major networking protocols, so multivendor mixing and matching will be a lot easier.

You also have a better idea of how easily you can integrate a given LAN platform into your favorite host environment. By then, LAN vendors will have hooked into one or more integrated management platforms such as IBM's Netview, DEC's EMA or HP's Overview.

In addition, IBM and DEC will have shaped up their strategies for supporting OS/2 and Unix as intrinsic parts of their network server architectures. And you'll have made up your mind on any major decision for a year or two? While it's hard to deny your users a much-needed file-server right now, you can almost bet that whatever client/server you use for choosing such a server right now will not serve your company's networking needs a few years hence.

Horwitt is a Computerworld senior editor, networking.

NEW PRODUCTS

Network management

Micro Technology has introduced Lance, a Simple Network Management Protocol-based multinegnet network management system that runs on Digital Equipment Corp.'s VMS or Unix operating systems.

The system consists of Lance/VMS, a remote application, and Lance/Tap, a hardware probe. Lance/VMS uses information from Lance/Tap to manipulate and display network activity. Lance/VMS works on multitasking Unix, Ultrix or VMS-based systems.

A one-year Lance/VMS software license costs \$15,000; the purchase price is \$30,000. Site licenses - are also available. Lance/Tap costs \$6,000.

Micro Technology
5905 E. Hunter Ave.
Anashkin, Calif. 92807
800-999-9684

Digital Link Corp. has unveiled a digital network management system that uses a Unix-based operating system with X Window System graphics that can run on an Intel Corp. 80386-based system or a higher level platform.

The Digital Link Extended Network Management System (XNMS) can support up to 128 local extended units and up to

1,023 total extended units. Its user interface offers a graphical display of the network's topology, and each element of the network can be searched by multiple means to initiate link tests or describe unit configuration and alarm status.

The XNMS database maintains the network configuration, historical performance data and alarm conditions. Standard reports are available at any time on-screen or via printer.

Digital Link
252 Humboldt Court
Sunnyvale, Calif. 94089
408-745-6200

Electronic mail

Wang Laboratories, Inc. has announced a voice-and-text messaging system that combines voice messages with electronic mail.

Office/Voice Mail Release 2.5 enables users to retrieve messages over the telephone by using synthetic speech. The new release enables users with Wang's VFEP-1000 voice front-end processor to combine voice messages, text icons and image documents in a one mail package, the vendor said.

The product requires Step/Code 1.6 and Step/Dev/Ver 1.6 software, both of which sell for \$500. The VFEP-1000 costs \$2,800. Office/Voice Mail Re-

lease 2.5 sells for \$2,800.
Wang
1 Industrial Ave.
Lowell, Mass. 01851
408-458-5000

Micro-to-host

Digital Communications Associates, Inc. has announced Windowlink for Irms Version 1.2, a software package that uses DCA's Irms hardware for micro-to-mainframe communications in the Microsoft Corp. Windows environment.

The product's pull-down menus support IBM's 3270 file-transfer mainframe software; support for IBM 3270 coaxial adapter boards is also offered. Emulation of IBM 3191 terminal keyboard layouts is provided.

The product is scheduled to be available in June for a suggested retail price of \$395. Current customers will be able to upgrade to Version 1.2 for \$75.

DCA
1000 Alderman Drive
Alpharetta, Ga. 30201
404-442-4521

Links

Cabletron Systems, Inc. has introduced a line of fiber-optic personal computer cards for IBM and Apple Computer, Inc. Macintosh platforms.

The Desktop Network Interface PC cards provide drivers for systems such as Novell, Inc.'s Netware; FTP Software, Inc.'s

Personal Computer/Transmission Control Protocol; and Sun Microsystems, Inc.'s Network File System. The cards incorporate a shared memory known as parallel I/O technology and support the Simple Network Management Protocol.

The product comes with ST or SMA connectors for \$399 to \$949 per card.
Cabletron
P.O. Box 6257
35 Industrial Way
Rochester, N.H. 03867
603-332-9400

Avatar Corp. has added a series of products to the Macmainframe series of connectivity products for Apple Computer, Inc. Macintosh systems.

Macmainframe Graphics, an application that emulates IBM's 3179G and 3192G color graphics terminals, can be used on the Macintosh SE/30 or II families for \$195 per node. The Synchronizer Data Link Control (SDLC) emulation (M-1295) enables a user to access and manipulate host information over a SDLC connection.

Other products include a token-ring workstation (M-1295) and three gateways.

Avatar Corp.
65 South St.
Hopkinton, Mass. 01748
508-435-3000

Naco Networks, Inc. has announced Lanframe, a file server and data communications con-

trol system that integrates industry-standard components into nonproprietary local-area network environments.

A basic configuration can accommodate file servers and offers 2.46 bytes of disk storage as well as 24M bytes of random-access memory, the firm said.

Pricing for Lanframe begins at \$20,000.
Naco Networks
802 E. Martintown Road
RTE 361
North Augusta, S.C. 29841
803-278-7225

Diagnostic equipment

Silicon Graphics, Inc. has announced Netviewalyzer, a network diagnostic tool that offers real-time visual feedback of network traffic flow.

Its graphical interface reportedly enables network administrators to visually monitor network traffic among gateways, routers and hosts. A network analyzer is provided for diagnosing protocol-related and packet-routing problems.

The product supports the Simple Network Management Protocol and is slated to begin availability in April of next year for \$3,000, the vendor said.
Silicon Graphics
P.O. Box 7311
2011 N. Shoreline Blvd.
Mountain View, Calif.
94039
415-960-1980

MANAGER'S JOURNAL

EXECUTIVE TRACK



Michael R. Wood has joined Showboat Casino Hotel in Atlantic City, where he will serve as vice-president and chief information officer.

Wood will oversee the hotel's MIS staff of more than 75 employees. He is also responsible for leading the organization in its utilization of technology.

Wood was most recently a management and information consultant to businesses in Atlantic City and Las Vegas. Previously, he was a partner in a certified public accounting firm in Los Angeles.

Wood holds a bachelor's degree in business from the University of Southern California.



Steven Gold, former manager of systems and programming at Echlin, Inc., has founded a consulting company called Microquest in New Haven, Conn.

At Echlin, a Branford, Conn.-based data firm, Gold conceived, planned and implemented a major downsizing effort that replaced the Echlin mainframe with a local-area network of personal computers.

Microquest will specialize in downsizing, offering managerial and technical assistance to firms that want to migrate applications from mainframes to microprocessor-based platforms.

Gold holds bachelor's and master's degrees in computer science from Yale University.

Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo to have your public relations department write to Clinton Wilder, Senior Editor, Management, *Computerworld*, Box 9171, 375 Commonwealth Road, Framingham, Mass. 01701-9171.

A taste of their own medicine

Health of corporate IS service helps Warner-Lambert buck outsourcing trend

BY CLINTON WILDER
OF STAFF

You probably won't see Warner-Lambert Co. at the forefront of outsourcing.

At a time when many firms are viewing operations as a nonstrategic part of information systems, Warner-Lambert's corporate data center takes a different approach. It bucks the trend with a very simple philosophy: We will provide the best IS service to the business at the lowest price. And it isn't satisfied to simply be cheaper than outside services vendors.

"We're playing golf, not tennis," says Thomas Hippe, vice-president of MIS at the \$4.27 billion maker of health care and pharmaceutical products. "In tennis, you just have to beat your opponent, and we should be able to beat [competitors] because we don't make a profit. But in golf, there's also a thing called par."

Data center director James Oster views outsourcing not as a threat, but as a healthy competitive force. "Some users have looked at it, and I suspect that," he says. "It's good to have a true market situation. Clients can use us for processing, do it themselves or contract it out."

At Warner-Lambert's corporate data center in Morris Plains, N.J., every wall is adorned with the center's mission statement: "To provide our clients with information processing facilities and services to meet business requirements in a responsive and cost-effective manner."

Oster, however, knows that words are hollow if they're not supported by the real benefit to the business: saving dollars. That is why the data center charges the corporation for every service it provides.



Warner-Lambert's Oster (left) and Hippe eye quality, cost-effectiveness

vice it provides.

"I'm a very staunch believer that any support function should charge," Oster says. "It will be managed much better. We do continual analysis of all staffing levels, services and planning. It's not something we do once a year."

Oster is in the process of converting some functions that had been done by user divisions hiring consultants, such as database administration, into a data center service that will be charged back at a much lower cost.

"Database consultants are very ex-

pensive, and even if you use them, who maintains the applications after the fact?" he asks. In all areas, Oster prefers to hire outside consultants only at times of peak demand.

A major principle in providing quality service, as practiced by Deming Prize winner Florida Power & Light Co. and other quality leaders, is to measure everything you possibly can. Oster is a strong subscriber to that notion. "We have the metrics in place," he says. "They say you can't manage

Continued on page 68

Archaic systems forcing agency shortcuts

BY GARY H. ANTHER
OF STAFF

Hobbled by antiquated computer systems, federal agencies too often base their services on what the systems can handle, not on what the public needs. That's among the conclusions reached at a government-industry symposium described in a recent report from the U.S. General Accounting Office (GAO).

The government is spending \$20 billion annually to improve its 53,000 computer systems, but "attempts to modernize the government's information systems have produced few successes and many costly failures," the GAO said.

In response, the agency sponsored a symposium to which senior information systems managers from Banc One

Corp., The Royal Bank of Canada, Co-vent Corp. and United Services Automobile Association were asked to contribute ideas for improving IS management.

The GAO said the October 1989 symposium identified the following five principles for effective management of information technology: • Successful automation efforts require a top management that clearly understands how the organization will benefit from information technology. Without clear direction from the top, programs degenerate into loose collections of independent systems.

• Agencies should forge alliances and cultivate partnerships to put the best available help from government, industry and academia.

• Customer service should be the cornerstone of the systems strategy. "Government typically focuses its attention on internal operational needs, with little regard to an important aspect of its mission — meeting the needs and desires of the public," the GAO report said.

• A comprehensive plan or architecture should drive all major technology purchases. Developing independent systems with no underlying foundation is unacceptable.

• Continuity of personnel at the project management level is essential.

The report also said the government should consider establishing a government-wide training program and a federal project management methodology.



1000 Marina Village Plaza, Alameda CA 94501 (Corp. Headquarters) • 1001 Rockville Pike, Suite 200, Rockville MD 20852 • 5650 Yonge St., Suite 1700, North York, Ontario M2M 4C3. Ingres is a trademark of Ingres Corporation.



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CLIPS



The Links

Summaries from leading scientific and management journals

University of Minnesota Manages Information Systems Research Center Working Paper

"Strategic Information Technologies for the 1990s: Organizational Needs and Technological Fit"
By Detmar W. Straub and James C. Wetherbe

During the 1990s, the success of an organization will be determined on how well management predicts what technologies are on the rise and how well these technologies fit into the existing structure of the company.

In a study by the authors, 11 information management authorities (Paul Berger, Richard Dooley, James Emery, Tom Gerrity, Mike Hammer, Earl Joseph, Peter Koen, James Martin, Warren McFarlan, Howard Morgan and John Rockart) gave their opinions on what the hot areas are going to be in this decade. In order of organizational impact, these technologies include human interface technologies such as speech recognition and voice I/O interfaces; communications technologies such as voice mail, electronic mail and electronic data interchange; and platform tool technologies such as computer-aided software engineering, compact disc/read-only memory, relational databases, fourth-generation languages and query languages. The most potentially controversial

finding is where expert systems and artificial intelligence ranked. Other than their use as front ends or as embedded systems, expert systems and AI are not expected to be organizationally important during the next 10 years.

In predicting beyond the decade of the 1990s, the industry pundits pegged biomolecular computing, nanotechnology and neural networks as the technologies to watch after the year 2000.

The Wharton School Working Paper

"Information Technology and Economic Reorganization"
By Eric Cramton and Michael Row

Being No. 1 in information technology does not mean that your firm will be the biggest kid on the block forever. Smaller companies are shifting their weight by forming cooperative ventures, outsourcing between markets and merging with other small competitors. For example, New York's NYCE automated teller network was a cooperative venture formed to combat Citicorp's dominant position with automated teller machines. Provident National Bank in Philadelphia has been outsourcing between markets by performing back-office processing for small brokerage firms.

The bottom line is that reorganizing or reshaping your resources may be more relevant to survival and profitability than being on the leading edge in information technology.

MIS Quarterly December 1989

"Reducing Data Processing Costs Through Centralized Procurement"
By James R. Taylor and Charles C. Tucker

First Interstate Services Co. (FISC), the information systems operation of First Interstate Bancorp., began exploring ways to lower IS spending in 1984. Previously, each of FISC's eight data centers bought hardware and software to support their own local requirements, and sharing of information and resources among the discrete centers was a rarity.

The company studied its costs and found it could potentially save millions of dollars by centralizing its hardware and software procurements for all of the centers. What started out as a one-worker operation has now grown to be the Corporate Support Services (CSS) procurement group, with seven staff members and a manager.

CSS' scope encompasses all major procurements, third-party leases for hardware, software procurements in which the product is likely to have applicability throughout the company and procurements where the experiences of the CSS would be helpful.

To gain acceptance, CSS started out slowly and was sensitive to the local needs and concerns of the data centers. And it has been accepted. In 1987, hardware and software expenses at FISC were \$57 million, but cost avoidance gained through the services of CSS were approximately \$12.4 million.

Other less tangible benefits included limiting price increases with vendors, the inclusion of training and documentation for many products without charge and site licenses.

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thing you
want in
transaction
processing:

1

2

3

Warner-Lambert

CONTINUED FROM PAGE 63

what you can't measure. I firmly believe that."

So, to paraphrase former New York City Mayor Ed Koch: How are they doing? Computer and communications uptime at Warner-Lambert is approximately 99.5%, while service rates have decreased more than 50% since 1985. Meanwhile, Warner-Lambert's profits have grown faster than its revenue, with a 21% profit jump on a 9% sales increase in 1989.

Quality service and support is the top priority for Warner-Lambert IS, rather than being the change agent for business

process redesign. Understanding the business is certainly *de rigueur*, but on the change issue, Hippe is a realist.

"I do take exception to the view that MIS must lead the charge for re-engineering," he says candidly. "Especially in manufacturing companies, I see that led by line management — supported and facilitated by MIS. We can design the right systems, but we can't get the benefits — they have to be yielded by line management. What we can do is make re-engineering possible and implementable."

One way that Warner-Lambert does that is by job rotation among IS employees. Each employee is asked to complete a written form stating where he or she would like to move within the company.

"If you spend six years in one function,

you'll be bored to death," Oster says. "Moving people, without penalizing them, is good for people. That can be a tough thing to work through, and I'll admit we've had some concerns about moving talented people out of areas where we needed them. But it turned out that the concerns had no basis."

Cross-pollination between business and IS has paid off for companies ranging from Du Pont Co. to New York Life, and Warner-Lambert IS employees are encouraged to apply for posted jobs in other departments if they wish.

A good example is Myron Harvist, manager of credit services in the corporate credit department for the past three years. Harvist was an applications manager in IS for eight years and spent more

than two years supporting the credit system that he now uses.

"I wanted to learn a lot more about the business," Harvist says. "I took a chance, and it's worked out well."

Although Oster views the data center as a well-run support function, it is far from an insulated glass house operation. Warner-Lambert has instituted several innovations for improving business-IS coordination, including the following:

- Holding an annual technology exposition for users, at which Warner-Lambert's leading IS vendors exhibit their wares — similar to the annual Technology Awareness Day put on by John Hancock Insurance Co. IS in Boston [CW, Nov. 13, 1989]. "We can't sit back in MIS and wonder where certain technologies will apply to our business," Hippe says. "The exposition helps the users see the opportunities."
- Creating end-user computing support groups within the business divisions. This meant giving up IS employees to staff those groups, which report to their respective division managers.
- Installing a laser disc-based system for the corporate libraries.
- Working with a software vendor to develop an expert system, based on an Aion

I DO TAKE exception to the view that MIS must lead the charge for re-engineering. I see that led by line management — supported and facilitated by MIS."

THOMAS HIPPE
WARNER-LAMBERT

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The University of Information Systems Management

Corp. shell, for the data center Help desk. The system aids the solving of most routine problems, freeing up Help desk personnel and increasing productivity.

The Warner-Lambert data center runs an IBM 3090 Model 400E and a 4381, with the latter used primarily to support electronic mail. The IBM host supports the three major divisions that account for 88% of Warner-Lambert sales: Parke-Davis pharmaceuticals; consumer products including Listerine mouthwash, Halls cigarettes and Lubriderm lotion; and American Chicle, which produces Chiclets, Dentone and Trident gum as well as Certs and Clorets.

The organization also uses Digital Equipment Corp. and Hewlett-Packard Co. minicomputers in its manufacturing plants and IBM and compatible personal computers for office work. Later this year, the firm's sales representatives will start using Toshiba Corp. and Compaq Computer Corp. laptop computers.

Oster's commitment to high service levels at low prices may cause observers to wonder if the data center really does services in the marketplace, but selling outside is *not* a role at Warner-Lambert — in all functions. That doesn't mean that Oster isn't working hard to stay on the leading edge.

"Actually, I don't look at [IS in] other pharmaceutical companies in much as I look at banks and insurance firms, where IS is integral to the bottom line," Oster says. "They may not be in the pharmaceutical business, but they're in *my* business."

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Searching for cross-functional employees

BY CLYTON WILDER
OF NEW YORK

NEW YORK—Cross-functional systems are great, but with regard to technology skills, where are the cross-functional information management employees?

Very hard to find, said Elaine Bond, senior vice-president of corporate systems at The Chase Manhattan Bank N.A. Addressing the Conference Board's eighth annual information management conference here earlier this month, Bond said the major business applications and rapidly changing technologies of the 1990s will require a breadth of skills that few technology specialists possess.

"I get frustrated because we have a lot of vertical depth—people are experts in DP or telecommunications or PC support,"

she said. "But I also need breadth and diversity to sort out this lot of choices that face us."

Bond told the approximately 150 information systems executives in attendance that IS employees tend to recommend solutions in their area of expertise—not necessarily the best solution to the business problem.

"Our choice of who to assign to a problem will, in fact, prejudice the solution," she said. "If I send the end-user support team, they'll recommend a LAN-based solution. If I send a telecom specialist, he'll want lots of networking. And if I assign people from the data center, they'll come back with something for the mainframe."

At Chase, Bond said, the IS skill mix has resulted in underutilization of desktop computing power. She said the global bank-

ing giant uses only two wide-area, business-critical applications that are personal computer-based. "Until we get the heavy-duty analysts and application developers to understand PCs, we'll continue to have that underutilization," she said.

Chase's situation is fairly typical, according to statistics presented by Gideon Gartner, chairman of Gartner Group, Inc., a Stamford, Conn.-based market research firm. Gartner estimated that in the average large organization with 300 million instructions per second (MIPS) of power on PCs, 285 MIPS, or 95%, are not being used. By contrast, mainframe MIPS are used at average throughput capacity.

"The idle time of PCs today exceeds all the mainframe MIPS ever shipped," he said.

Bond proposed two methods

to increase cross-technology skills in IS organizations. The first is training and new skills development, which can be speed-

suming and difficult challenge, but a critical one. "The team concept is something of a dream," she said. "And there's no way we can build all these skills in one person. We're still going to need some vertical depth."

GARTNER ESTIMATED THAT the average large organization with 300 million instructions per second of power on PCs, 285 MIPS, or 95%, are not being used.

ed by making the data center responsible for PCs and local-area networks, for example.

The second method is called "teamware"—assigning groups of people from different technical backgrounds to work together on specific problems.

When asked by the audience, Bond admitted that both approaches represent a time-con-

At the conference, Gartner Group presented its annual Excellence in Technology Award to Xerox Corp. "We feel we have only begun to tap the potential of information technology," said Xerox President and Chief Executive Officer Paul Allen, who had been named CEO by Xerox Chairman David T. Kearns just two days before the conference.

CALENDAR

Information systems executives and other top officials from companies including Marriott Hotels and Resorts and Florida Power and Light Co. will address the topic of "Information Technology and the Customer-Centered Organization" next month in Boston.

The Hammer Forum '90, to be held May 14-16, will focus on revolutionizing customer service through the innovative use of information systems. Other companies represented will be Xerox Corp., Fidelity Investments, Manpower, Inc., American Express Co., The Northwestern Mutual Life Insurance Co., Stratus Computer, Inc., Roadway Express, Inc., Corporate Software, Inc., General Electric Co., and Joliet Johnson Wax.

For more information, contact Hammer Forum '90, Cambridge, Mass. (617) 354-5555.

Section 1706 tax battle continues

BY DAVID A. LUDLUM
OF NEW YORK

WASHINGTON, D.C.—Computer consulting firms that provide services through independent subcontractors have seized upon a new weapon in their ongoing battle against a 1986 tax law: They're accusing the U.S. Internal Revenue Service of violating taxpayer rights.

Ten days after a recent U.S. Senate subcommittee hearing, a lawyer for the National Association of Computer Consultant Businesses (NACCB) charged that IRS agents violate numerous procedures when investigating members of the association.

Generally, the IRS agents are investigating whether indepen-

dent consultants working as subcontractors for association members should be reclassified as employees. For larger NACCB members, a reclassification might require payment of \$1 million in back taxes, said Harvey Shulman, the attorney representing NACCB.

In his testimony, Shulman said IRS investigators sometimes assume most or all of a subcontractor's work should be reclassified as employee; forcing the firm to negotiate or appeal.

Shulman also said IRS agents visit companies unannounced to demand tax documents and other business records and that they fail to provide members of targeted companies with an IRS

publication that spells out taxpayer rights.

Shulman said NACCB members typically spend 200 man-hours complying with IRS requests for documents and the one company halfway through an audit has devoted 1,600 man-hours to the work.

The NACCB's call is the repeal of Section 1706 of the Tax Reform Act of 1986. It spells out standards for classifying of employees and independent contractors who perform technical services, such as computer programming and systems analysis, that are different from the standards for most industries. It requires technical service workers to be classified on the basis of 20 common-law standards.

APRIL 22-26

National Systems Programming Association International Conference, Dallas, April 22-27—Contact: Don Conner, Milwaukee, Wis. (414) 425-2400 ext. 107.

CASE Strategic Planning Forum, Dallas, April 22-23—Contact: Training Technology Corp., East Wayne, Mich. (817) 856-0437.

International Technical Forum, April 23-26—Contact: Insignia, Menlo Park, Calif. (415) 941-2288.

Beverly Hills, Sept. Control Systems Research, Washington, D.C., April 23-26—Contact: Computer Force, Report Center, Washington, D.C. (202) 465-1258.

IBM Sales-Eng and IBM Local Sales Vets, April 23-27—Contact: Express, Research, N.J. (201) 789-4554.

On-Line 900, Workshop, New York, April 25—Contact: DRG and SQUAD Systems, New York, N.Y. (212) 866-7363.

Great Lakes Systems Seminar, Toledo, Ohio, April 27—Contact: Delta Epsilon, Evanston and Young, Detroit, Mich. (313) 260-3362.

APRIL 29-MAY 5

Library Automation Conference, Austin, Texas, April 29-May 1—Contact: Information Sharing Committee, University of Wis-

consin, Madison, Wis. (608) 263-5887.

ISOMA Partnership Conference, Toronto, April 29-May 3—Contact: Alex Parr, LOMA, Atlanta, Ga. (404) 596-3735.

National Automated Clearing House Association Annual Conference, Washington, D.C., April 29-May 3—Contact: NACHA, Bethesda, Md. (301) 474-9796.

Adding Issues: Proceeding to Information Systems, Los Angeles, April 30-May 2—Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 594-6305.

Shorefront Development Forum 35, San Diego, April 30-May 3—Contact: Eastern Shorefront Computer Science Corp., Norwalk, Md. (410) 464-5665.

Connectivity '90, Chicago, May 1-5—Contact: Real World Systems, Glen Mills, Pa. (215) 358-3245.

Advanced Manufacturing Systems Integration and Conferences, Chicago, May 1-3—Contact: Computer Expansion Group, DePue, Ill. (312) 299-0311.

Any 2, World's 90th Annual Office Systems and Hardware Exposition, Cambridge, Mass., May 1-3—Contact: Niall Associates, Boca Raton, Fla. (305) 487-4842.

Conference on Innovative Applications of Artificial Intelligence, Washington, May 1-3—Contact: American Association for Artificial Intelligence, Maine Park, Calif. (415) 256-3123.

C Programming With Style and Structure Seminar, Milwaukee, May 1-3—Contact: John T. Sussler, Center for Continuing Engineering Education, University of Wisconsin-Milwaukee, Milwaukee, Wis. (414) 227-3130.

International Mobile Data Conference, Washington, D.C., May 1-4—Contact: Niles Information Systems, Bethesda, Md. (301) 773-6888.

The Future of World Telecommunications and Information Technology, New York, May 1-4—Contact: Business Week Executive Program, New York, N.Y. (212) 848-9818.

Information Management: The Next Generation, San Francisco, May 2-3—Contact: Delta Consulting Group, Boston, Mass. (617) 723-7445.

North American MAN/OP Users Group Meeting, Washington, D.C., May 2-3—Contact: Call Asset, Manufacturing Automation Process and Technical Office Product Users Group, Ann Arbor, Mich. (313) 760-4458.

Pacific Tampa Exposition, Anaheim, Calif., May 2-4—Contact: Pacific Int'l, San Francisco, Calif. (415) 448-3975.

Solutions for the '90s Information Technology Conference, Memphis, May 2-4—Contact: University of Tennessee, 777 Center, Memphis, Tenn. (901) 528-7075.

Practical Artificial Intelligence Seminar, New York, May 3—Contact: Tadpole, New York, N.Y. (212) 362-0686.

New Communications and Coding Systems, Atlanta, May 3-4—Contact: Association of Energy Engineers, Atlanta, Ga. (404) 525-8823.

A Shared Solution to Software Technology (Market), Orlando, Fla., May 5-6—Contact: Area Headquarters, Chicago, Ill. (312) 444-8610.

Association for Systems Management (ASAM) Information Systems Conference, Atlanta, May 6—Contact: Third Cities, ASAM, Cleveland, Ohio. (216) 243-6995.

College and University Computer Users Conference, Dallas, N.Y., May 6-8—Contact: Penn State, University at Buffalo, Buffalo, N.Y. (716) 436-2626.

Information Industry Association

Spring Conference, San Francisco, May 9-9—Contact: Information Industry Association, San Francisco, Calif. (415) 426-8232.

Information Systems Conference, May 9-9—Contact: American Association for Information Systems, Chicago, Ill. (312) 444-8610.

Signal Equipment Computer Users Society (Shops), Springfield, Massachusetts, May 9-11—Contact: Davis, Marlboro, Mass. (408) 468-3608.

CASE in Personnel Services, New York, May 7-8—Contact: IBC USA Conference, South Plainfield, N.J. (201) 696-4705.

Data Administration Management Association Conference, Washington, Md., May 9-11—Contact: Dallas District, Arlington, Va. (703) 841-4374.

Data Administration in the 1990s, New York, May 7-8—Contact: Performance Data, Indianapolis, Ind. (317) 800-921-3776.

Facilities Management for Better Results, New York, May 7-8—Contact: GSI of Management Systems, Massachusetts Institute of Technology, Cambridge, Mass. (617) 253-0956.

EXECUTIVE REPORT

WHAT CONSULTANTS KNOW THAT YOU CAN USE

Often, the best nuggets aren't in the written report

BY KATIE CRANE

A Hyland says that consultants are not a common sight at his company. In fact, Polaroid Corp.'s director of worldwide systems estimates that until Arthur D. Little, Inc. came on the scene last October, it had been 10 years since any outsider had cast an evaluative eye on the company's central data centers and telecommunications.

The reason for the break with tradition, Hyland explains, was that Polaroid wanted an unbiased critique of its own strategies against what he labels "the noise in the computer press about outsourcing."

"We asked them to step back from the trees and tell us what the forest looked like," Hyland explains. "We wanted to know how our systems compared to their view of what was important, especially in light of the technical and business trends of the last three to five years." Using consultants to provide perspective is not a bad idea, Hyland says. When you are working on the inside, it is not always easy to tell the difference between perception and reality. "Is-house staff can sometimes be parochial. We have our own ways of doing things; we're captives of our own environment," he says.

According to Hyland, Arthur D. Little was essentially given two agendas. The primary assignment was to ascertain whether the company was on the right track in terms of its major strategic decisions. The second task was a more open-ended request for tactical feedback and suggestions.

As a result, when Arthur D. Little delivered its report in December, Polaroid received not only a confirmation of its general course but a number of specific recommendations about systems and procedures peripheral to the main assignment. Hyland refers to these suggestions as "side benefits." Few of the pro-



Polaroid's Hyland says that open-ended requests can produce richer feedback

posals were earth-shattering by themselves, he explains, but most of the ideas would not have been as clearly viable to an insider and, taken together, they represented the opportunity for significant cost savings. And that's the money, he adds, that he can spend on technology and technical support.

Feedback that extends beyond the strict limits of the project at hand is the No. 1 source of added value in a consulting engagement, according to many information systems executives.

Virtually every IS executive hopes for this kind of "extra" information, and some ask for it explicitly. Hyland and his colleagues at Polaroid intentionally gave Arthur D. Little an open-ended charge with a few specific requests because they wanted

the most out of the experience.

"Who wouldn't?" asks American Management Systems, Inc. founder Patrick Gross. "People don't spend a dollar to save a dollar. They invest a dollar today, expecting to save five or 10 tomorrow," he says.

Dollars are in great demand and short supply at Home Life Insurance Co., an Senior Vice-President of Information Services Gary Laughhouse is cautious about how he spends them, especially on consulting. "I was a consultant for 20 years before coming to Home Life four years ago," he explains, "so I don't like to pay \$200 per hour if I can address a problem using my own contacts and experience."

Nevertheless, Laughhouse, who has just finished, in his words, "dancing for a week"

with a team of experts from Technology Solutions Co. in Chicago, is preparing to sign the company up for a longer engagement.

When he invited a proposal from Technology Solutions, Laughhouse says he was simply hoping to get ideas and approaches for when and how to implement image processing. Instead of responding with a standard proposal, however, Technology Solutions volunteered to perform a survey free of charge.

"Of course, I knew the study was just a carrot," Laughhouse says. "I knew they would be looking for every project they could find, but I felt comfortable with that, knowing I could control the situation."

As it turned out, the survey also served as a marketing tool for Laughhouse. It provided the evidence he needed to convince company management of something he'd been contending all along but lacked the facts to prove—that it would be a mistake to proceed into image processing without first tackling some basic work-flow analysis.

Laughhouse admits that even his own eyes were opened a

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Crane is a free-lance writer based in Norwich, Vt.

EXECUTIVE REPORT

Nuggets

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little wider. Although he always had a sense that work flow could affect a project such as image processing, the extent of the interrelationship between the two was something that, he says, "Even I didn't see as clearly before." He says it was "as clear as

the day is long" once they pointed it out, however. For Laughlinhouse, Technology Solutions not only clarified priorities but also helped convince top management that a step-by-step approach — starting with the basics — was "really important."

What happens off the meter and outside the bounds of a specific project is frequently cited as one of the most valuable aspects

of working with consultants. Whether through chance conversations in a hallway or ongoing relationships outside the work setting, information systems executives frequently discover that it is possible to learn a lot through casual contact. They use words such as "coach," "advisor" and "sounding board" to describe the collaborative relationship that often grows out of

certain types of projects.

"We meet over dinner, and I pick his brain," says Prudential Service Co. Executive Vice-President Michael Vitale of one consultant he has used for several small assignments. "An objective third-party observer will tell you things about yourself that your own best friend won't tell you," he says.

This makes a lot of sense to

Ron Brzezinski, a former IS executive turned Coopers & Lybrand consultant. "IS executives — still outside the inner management circle — have so few people who can understand and discuss their problems," he says. "They use consultants to get their own creative juices flowing."

Always a skeptic

Not all IS executives feel comfortable relaxing their guard to that extent, however. They worry about whether friendly give-and-take will complicate an essentially commercial relationship and cause consultants to regard them as an easy touch for add-on projects.

Larry Novak, Samsone Corp.'s director of MIS, is one executive with a healthy skepticism about these sorts of "added" benefits. "Too often, added

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*As an example, Novak recalls how he was able to get a personal education from a collaboration with a Detroit-based consultant.

ONE OF THE greatest services a consultant can offer is to serve as a lightning rod for a company's own ideas — concentrating scattered thoughts and collecting the energy to translate them into action.

GEORGE SCHUSSEL
DIGITAL CONSULTING

value is just a polite term for overselling," he says, claiming that it is sometimes harder to get rid of a consultant than it is to find one.

There are opportunities for gleaming extra value out of associations with consultants, Novak says, but they do not necessarily involve friendship or even conversation. You can, he suggests, learn a great deal simply by being observant.

As an example, Novak recalls how he was able to get a personal education from a collaboration with a Detroit-based consultant.

The specific project was preparing a cost/benefit analysis on a proposed sales automation effort. Novak brought in the consultant for two reasons, he says. One was that he needed help in identifying benefits that would justify the project's expense; the other was that he wanted to learn and master the skills of explanation and presentation.

"I wasn't just interested in the oral presentation, but in how he structured the arguments on paper and in his approach," he says. Novak says he didn't have to ask the consultant how he did these things; he just watched and listened closely as the consultant went through the process, freeing variables one at a time and asking, "What if?" By the time

the project was completed, Novak had the technique down pat. Now it is his modus operandi for preparing project justifications.

There is also another form of added value that can be derived from using consultants, Novak points out, and it is one that requires nothing more of the IS executive than recognizing a loaded situation. The reality, he says, is that sometimes an outsider is able to accomplish more in a politically charged situation than an insider ever could. It isn't that he is saying anything different; it's just that he represents less of a threat to vested interests.

Mike Drips, a systems analyst at United Data Services who previously worked as a consultant for 20 years, recognizes that phenomenon. "The sad truth," he says, "is that top management won't believe you, but you can spend thousands of dollars to have a consultant say the exact same thing, and they'll buy it."

Power source

Not surprisingly, George Schussel, president of Digital Consulting, Inc. in Andover, Mass., does not think there is anything about the vote-getting power of consultants.

That's one of the greatest services a consultant can offer, Schussel says — serving as a lightning rod for a company's own ideas, concentrating scattered thoughts and collecting the energy to translate them into action. Sometimes, he says, an outsider can point out something obvious in a logically compelling way, and that builds a momentum. "Then," he says, "others who are leaning that way jump on the idea and support it."



Frito-Lay's Feld says the give-and-take is improving

John Cunningham, president of Competitive Technologies, Inc., an Easton, Conn., consulting firm, would give Novak high marks for seizing the opportunity to learn a new technique that he can build into his private practice. Cunningham calls this "technology transfer." He believes that the best consultants go beyond one-time solutions by offering what he calls a "solution technology" to their clients so that, in most cases, they can replicate the process later on their own. According to Cunningham, when technology transfer is working well, the consultant

becomes obsolete over time. And that, he says, is the way it should be. "The client is much more productive and the consultant is a much higher level partner when we work together this way."

Clearly, this type of consulting is not appropriate for every project. Some projects require a specialist, what Braselini calls "a walking encyclopedia." Not all, he warns, require "someone who is an extension of you" — a consultant who can help you identify problems, formulate strategies, assess your organizations and so on. Finding the right fit and maximizing chances for gaining some extra value out of the bargain is an inexact science.

"It's not like I can get them to write it down in advance," Vitale says.

Still, Vitale and others have their methods of assessing consultant potential. His primary interest, for example, is not in finding out what a consultant knows on theory but what he has done. Vitale looks at past experience first, and if that passes the test, he tries to assess how intuitive and perceptive the consultant may be. "I want [them] to be able to convey ideas in a way that has impact but doesn't drive people away," he says.

John Diesem, senior president at a leading national stock exchange (exchange policy prohibits him from using the name), insists that ability by itself is not as vital as availability and amiability. Crucial factors cited by IS executives in determining the cost/benefit ratio of using a consultant are personal chemistry, objectivity, broad perspective, credibility and a reputation for quality, integrity and technical excellence.

These factors are best assessed during what Tobey Choate, a vice-president at Arthur D. Little, calls "face time" — that period of time during the selling process when "you sit and chat," and no one is counting minutes in dollars.

The best use of time, Choate says, is to reach an agreement on specific questions that need to be answered and how to answer them. In fact, he notes, this definitional process is one in which consultants routinely add value at no extra charge.

Diesem also relies heavily on references and his professional network to evaluate these more subjective factors. He says he received a call recently from a colleague at another company who was considering hiring a consulting firm but was concerned that he was dealing with too junior a person. Through his contacts, Diesem was able to place a few strategic calls "to see if I could get some bigger guns to come to the party."

Who does what, when?

The question of who actually does the work is a big concern to many when hiring a consulting firm, particularly a large one. Vitale says that when he has used large firms, "too often they use Prudential as a training ground." He notes that this seems particularly true when the hiring firm holds a "beauty contest" (goes out for bids) to select a consultant firm. "They'll send anybody to make the sale, but who actually shows up to do the work is another story," he says.

"You don't want bait-and-switch," Choate admits, but he argues that there are times when junior people are both capable and cost-effective. The key, he says, is for the client to be aware of whom it is getting. Laughhouse agrees, claiming it is not the name or size of the consultancy that matters but the people who will carry out the assignment.

In the end, the consensus is that added value in a consulting assignment comes when consultants keep their eyes open and point out problems and opportunities that exist outside the scope of the assignment.

"A good consultant will do that anyway," says William Management Systems' Gross, but he and others — consultants and IS executives alike — consistently offer one piece of advice: When you hire a consultant, explicitly ask for candid feedback. It may come in a formal report or in an informal meeting (Choate argues that the real issues almost always come up in an informal forum), but it is almost certainly available for the asking, and you need not pay extra for it.

Think of it as a fair exchange, says Charles Feld, because, after all, there are tricks that consultants can also learn from you. "I'm very optimistic about the inter-

change between consultants and practitioners," says Feld, who is vice-president of MIS at Frito-Lay, Inc. "We're rebuilding a body of knowledge, and we can learn from each other."

As an example, Feld notes how he and his colleagues have expanded on an assessment study done for Frito-Lay by Nolan Norton & Co. in 1981, growing it into what he calls a management system for strategic planning.

"After the consultant left," he explains, "we had a good snapshot of where we were and where we wanted to be. It was like a balance sheet. That became our management plan."

Two years later, Frito-Lay did another study with Nolan Norton and then another on their own a few years later. For more than a decade, they repeatedly applied the technique every few years, each time refining Nolan Norton's original framework and making it into a management planning tool.

"We know exactly how to keep the data and how to look at it," Feld explains. "Of course, Nolan Norton is interested in what we have done because we have taken their original framework and driven it beyond even what they had envisioned for it."



Prudential's Vitale looks for a record of hard work

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EXECUTIVE REPORT

Keeping close tabs on the visitors

BY SHERYL KAY

For IS executives who bring in consultants so they can wash their hands of a project and direct their attention to other matters, the message for the 1990s is clear: Don't do it.

With the use of consulting services for systems development on the rise, information systems directors cannot be assured of delivering effective systems to users if they are not managing consultants' progress. "It's not that things will definitely go wrong," says John Larson, director of IS at Pillsbury, Inc. "It's just a lot more likely that you will have problems."

Larson says there's not much difference between managing systems staff and managing consultants. Neither group should

be left to act without guidance from systems managers.

"The only difference may be that we have more flexibility with consultants than we do with our own employees, in the sense of a long-term commitment," Larson explains. When a consultant

effort proves to be unsuccessful, IS executives are quicker to terminate the relationship than they are when their own employees run into problems.

Plotting a course

To avoid a consulting failure, IS managers can take several precautions. IS can establish control over the project at the outset by clearly defining the consultants' objectives.

IS executives and consultants can also agree on what methods the consultants will employ. The consultants need a thorough knowledge of their client's environment so that they will be prepared to plot the right course, explains Jim Sorenson, director of management information services at Cotter & Co., a hardware wholesaler based in Chicago.

"When you feel comfortable that you understand what they are going to do, that's not enough," Sorenson says. "You have to know how they are going to accomplish the solution, and then you have to stay involved

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Cotter's Sorenson

throughout the project to monitor it."

One way to monitor progress is to meet on a regular basis. In addition to meetings, requiring progress reports from consultants is a good method of assessing advancements against pre-established milestones. Bill Emerson, a senior manager at Nolan, Norton & Co., a consulting firm in Lexington, Mass., suggests reports be done on at least a quarterly basis.

The scope of the project itself will dictate what specific information should be contained in these written documents, says Emerson, who was once the director of merchandising systems at The May Department Stores Co. A report regarding a systems installation project, for instance, might include data on which prototypes have actually been completed or where the consultants are currently developing certain program modules.

For higher level projects, however, when consultants have been retained to introduce a change in the IS organization's procedures, Emerson says the

Kay is a Tampa, Fla.-based free-lance writer specializing in emerging technologies and human resources.

report would include different information. It might discuss facts that have already been gathered by consultants, what obstacles could stand in the way of changes and who is responsible for authorizing changes.

"The information you get [in a high-level project] may appear to be a bit less tangible than that from a systems development re-



Virginia Smithers

port," Emerson explains. "but it's still critical to know where your consultants are at in the project."

Sorenson also finds value in reports but adds, "No measure of lines of code or pages of documentation could ever be as reliable as feedback from my own people."

Sorenson has made it a policy to get a minimum of two of his senior managers directly involved with a consulting team's project. "I feel much more comfortable when my staff is participating so that they can let me know if the consultants are being productive and addressing the issues," he says.

THE INFORMATION you get [in a high-level project] may appear to be a bit less tangible than that from a systems development report, but it's still critical to know where your consultants are at in the project."

BILL EMERSON
NOLAN, NORTON & CO.

Fortunately, Sorenson held this philosophy back in 1987 when Cotter went through a major DOS-to-MVS operating system conversion. Although contracting with a nationally recognized and reputable consulting firm, Sorenson still opted to assign several of his own senior staff members to the project.

"Because my people were right there, we were able to identify early on that the consulting firm was not providing adequate and timely solutions," Sorenson says. Eventually, he dismissed that consulting company and brought in another one that successfully completed the project.

Even when employees are on the scene, projects can stumble when consultants receive mixed

messages. For J. Westwood Smithers Jr., director of information technology for the Commonwealth of Virginia, "It's important to have the purchaser speak with one voice" when dealing with consultants. In the past, Smithers says, client agencies have occasionally overstepped their bounds by trying to direct consultants' efforts. What usually results is confusion and delays.

One instance, Smithers says, occurred when the Board of Elections system was turned over to Dominion Massey, Smithers' systems development director, after one year of the client agency trying unsuccessfully to manage the technical consultants on their own.

"We had 18 months left to bring in a system that was identified as a 25- to 30-month project," Massey recalls. So he brought in new consultants who reported back to him on a daily basis. The project was completed two months early.

Occasionally, IS consultants may be hired by executives who are higher up on the corporate ladder than the top IS executive, which alters the relationship between consultant and IS executives. "In that case, we work on a peer basis," Larson says, "and we become an information source to the consultant." Larson's primary concern in such a scenario would be to assist the consultants in completing the project, as opposed to managing them.

Sorenson sees a potential problem with working as peers. "Certainly, there might be a

small degree of suspicion," he observes, "watching to see if there might be a hidden agenda." Time, however, would eventually lead to trust in building an effective working relationship, he says.

More than anything, Massey says, open communication is the best management technique. Having worked several years as a consultant himself, Massey adds that the more information the client and consultants have, the fewer surprises there are for either side.

Emerson adds that the best manager knows exactly when to stop directing. After all, he says, consultants are hired for their objective and external viewpoints. The role of the IS manager should be to guide their creativity, not stifle it. ■

How do you detect an expert?

Put your ear to the ground and listen to voices of experience

BY JANET RUHL

You can tell a genuine Roles from a Far Eastern counterfeit by the sweep of the hands around the face. If it's a smooth motion, you've got an original. If time jerks forward, you've been had. When it comes to making sure that the alleged expert consultant you sign up is really an expert, however, things get a bit trickier.

There is no widely accepted certifying body for information systems experts as there are in other specialties. Resumes listing impressive job titles at previous employers may tell you more about consultants' political skills than their business savvy.

Even buying certified names is no guarantee. Well-known consulting companies may owe their popularity more to the low rates they charge for their disquieting Cobol codes than to the presence of real experts on their staffs. And the expertise of some consulting firms may be colored by the fact that they are also in the business of selling proprietary software products.

Hard row to hoe
Although difficult, the task of finding a real expert is not impossible. Most executives seem to find real experts by looking their ears to the ground and noting the experiences of others in their industry.

Robert Rubin, vice-president of MIS at Atochem North America, says that the first step in finding an expert consultant is paying attention to the names that are dropped when networking with his peers. And Dan Cavanagh, senior vice-president of the vanuagh, senior vice-president of IS at Metropolitan Life Insurance Co., finds that colleagues often recommend an expert when conversation turns to how to deal with a particular business problem.

Both Rubin and Cavanagh say that the first meeting with a consultant should be run like a job interview. A certain amount of time should be spent verifying past experience. But, one characteristic of real experts is that in the interview, they usually try to define the problem to be solved.

Rudyard Merriam, president of CompuLink, Inc., a Houston-based consulting firm specializing in industrial automation system design, says, "Clients tend to have a solution in mind when

they begin talking with me. I usually then work on extracting the problem before doing any further work."

Rubin sees this as a good approach. He suggests that at the interview the executive should describe the situation to the expert and then ask him to explain what he sees as the problem.

The interview is one method of testing how well you and the expert are able to communicate.

Richard Cohen, a consultant specializing in systems development, suggests asking, "What is likely to go wrong here?" If the consultant cannot explain some realistic problems to the client in terms the client can understand, Cohen argues, then the consultant isn't likely to be useful, regardless of technical ability.

Gary W. Kirkham, executive director of Forecast Planning Associates in Dallas, also suggests that you look for "good chemistry and similar attitudes" when you interview a consultant. Otherwise, no matter how valuable the expert's advice, you may resist taking it.

The proposal that a consultant presents to you following the interview demonstrates his expertise in action. What you should be looking for is a proposal that establishes a clear project scope and shows that the expert understands your business objectives, says Evans Bruner, president of both the Independent Computer Consulting Association and Bruner Consulting Associates, a Bridgeport, Conn.,



Met Life's Cavanagh

based, management information consulting firm.

The proposal should not attempt to enlarge the project or provide a more elegant solution than what you originally requested. Bruner warns that a proposal that misses your objectives often forebodes real problems ahead.

Merriam stresses that the proposal should cover the points you need in your own language,

not in "computerese," and Kirkham advises that you look for clearly defined deliverables and costs.

Users and consultants agree that checking with past clients is the best way to verify expertise. Mike Ashmore, a principal at Temple, Barker and Stone, Inc. in Lexington, Mass., specializing in technical management issues, cautions that it is important to distinguish between the high-profile — often self-proclaimed — expert whose forte is touting off facts and the latest methodologies, and the effective problem-solver who knows how to put that knowledge to work to get results. He suggests that when checking references, you



Atochem's Rubin

also seek evidence of measurable business gain from those who have used the consultant.

William Stoddard, managing partner at the Manufacturing/Industrial Products Practice of Andersen Consulting, agrees that if the expert claims to be able to cut costs and streamline your operations, you should ask previous clients to provide some before and after measurements verifying the consultant's claims. Don't be shy in asking for details about the consultant's work, Stoddard says. "Clients are happy to talk about success."

Besides seeking demonstrable results, you should also be looking for a good match between the scope of the expert's previous projects and your current requirements, Rubin says.

Finally, to ensure that you get a real expert when dealing with a large firm, Stoddard recommends that you make sure that the person you interview is the one who will do the work, not just a straw man out to secure the contract. You should also be sure to inspect the resumes and references of all the individuals whom the company will be sending to work with you, not just that of the team leader.

All of this can take a lot of time, but in the end, it is probably more efficient than hiring a consultant who is either ill-suited for the job or an apprentice in an expert's clothing. ■

INTERVIEW

The value of ad hoc partnerships

Richard Koeller of Whirlpool recommends taking the time to develop substantive relationships with consultants instead of treating them like hired help

Information systems executives can get the most from their consultants by working with them as partners, says Richard D. Koeller, vice-president of information technology at Whirlpool Corp. Developing and sustaining the partnership, however, requires commitment and some caution. Computerworld Senior Writer David Ludlum spoke to Koeller about his approach.

How is a partnership different from a conventional relationship with a consultant?

It allows more freedom of assignment [for the IS manager] and more risk-taking by the consultant. They're trying to do the best they can on some work that's not clearly specified out. You've got to trust them like your own employees, and they have to have the welfare of [your company] at heart much more so than in a normal contract relationship.

How long does it take for this kind of trust to develop?

It depends. A one-week project could be sufficient if all you expect out of the partnership is infrequent calls for advice and short-term projects. If you're trying to put a \$2 million project team together, then I think the period of time might be six months to a year, with two or three different projects.

I think it's a combination of time and shared experience. Respect is earned, not given. You've got to get to know the people; you can't just partner with strangers. As you develop those partnerships, they become very personal. It's Harry Brown and Mary Smith who are dealing with, not the firm.

What kinds of things have consultants done for you as partners?

One of the things I've asked a consultant to do is to chair the project management of our executive information systems pilot because it was new to us. The idea was not only that the consultant would help in managing the pilot but, more importantly, train our people so that we could do it for ourselves from that point on. The idea is to have a consultant take on anything where his skill

set fills a void in our organization.

Is the approach appropriate for all situations?

No, it isn't. It doesn't apply if you really just want to buy a service. You don't have to go into partnership with the power company, you just buy kilowatts. If you want to buy processing from a time-sharing firm, or you want to buy a payroll package and have it installed, or you want to acquire technical support services to install operating systems — it's not necessary to develop a partnership.

So when is a partnership beneficial?

When the degree of changeover time is fairly high — so that from the time you start to the time you're done, there will be a lot of outside factors affecting you. It is also appropriate if you're developing something new, and you simply cannot predict where it's going to lead you.

Another obvious instance is when there will be, over a long period of time, [a repeated need for] skills that you simply can't afford on the inside. This is very similar to the strategies a lot of companies are developing with their suppliers: instead of working with 100 suppliers on the basis of low-cost bidding, they get down to three that they work with very closely.

Do you see any risks in investing consultants with this level of trust?

You have to approach this as cautiously as you would any other partnership.

The downside is that — if you aren't careful — it is much easier for a partnership to become an unlimited contract. You can lose control of the spending if you're not careful. So even in a partnership arrangement, it's necessary to be very specific and limit the activities explicitly.

Obviously, turnover can also be a problem. This doesn't work if the members of the partnership turn over too quickly on either side. Partnership is not something you can assign to a box on an organizational chart. It's got to be assigned to named individuals with capabilities and backgrounds to work through it.

In addition, partnership has to be managed carefully because

the external firm doesn't want its people to behave like employees of the client company. If you watch for them, though, there are opportunities to grow the relationship over time — when it's beneficial to the company, not for the sake of the consulting firm's revenues.

With how many consultants do you maintain this kind of relationship?

I haven't really counted, but I'd



When values are shared, control is not an issue, Koeller says

say more than 10 and less than 20 firms.

Have you ever been burned by a consultant you trusted?

Yes, when I've asked people to do things that really weren't in their line of work. For example, at one point, we were hiring people with MBAs to write code. They had the skill set and we had the need, and we kind of forced it. By the end of the project, we realized that it was really not [a relationship] we wanted to be in for the long term and that the choice to farm out that work was inappropriate.

Have you ever run into problems in controlling a consulting project?

Yes, and that's why I tend to work in a partnership arrangement. The shared values of the partners guide the project, and control is not an issue. You could almost trade roles — either one of us could be managing either

one of our staffs, and we wouldn't have a problem because of the shared value. We both know we're trying to get to the same goal.

When you're dealing with strangers, control is a function of the contract and of the management of that activity, and it's much tougher to pull off.

What are internal perceptions of this kind of close consulting relationship?

Do IS staff or business managers ever question why an outsider is allowed so much latitude?

If the outsiders are not managed well or behave improperly, yes. But from company to company, you will find a different climate for the use of consultants. It has to be done in the context of what is "normal" in the company or business in which you find yourself.

Are there tasks that you would never trust to any consultant?

Obviously, you have to be very careful with confidential information.

Depending on how you handle nondisclosure agreements, I guess you could cover most things. It's hard to answer that question generally. You have to evaluate it on a case-by-case basis.

Do you think that IS executives generally get maximum value out of the consultants they employ?

I think we're learning to do it better. I think from the past track record, we haven't done as well as we can.

What have the problems been?

Probably inexperience. Also, I think there was more of an adversarial stance in the past. Some outside consulting firms were in competition with the IS personnel. There's a lot more openness today about using outside contractors, systems integrators and so on in a partnership role rather than an adversarial role. ■

IN DEPTH

21st century outsourcing

Savvy organizations will look beyond simple cost cutting and begin to explore new business partnerships

BY JOHN R. OLTMAN

I just got back from Japan, where companies rely heavily on Japanese main-frame manufacturers for outsourcing. You have to ask yourself why. The answer is that they see outsourcing as a way of adding value — not just cutting costs.

Outsourcing means turning over, or sharing, responsibility for all or part of an organization's information technology function with a third party. However, outsourcing today is a lot more than just a network of "MIPS factories" and cost cutting. Outsourcing must deliver significant business value to organizations beyond that of reducing costs.

Outsourcing is here to stay; it's not a flash in the pan or a temporary solution. Information content — the value of bundled hardware, software, communications, services and so on — distributed through outsourcing contracts could total more than \$100 billion by 1995.

During the next decade, outsourcing will focus on driving a high level of business and industry expertise into firms' operations with information technology to uniquely position them in their marketplaces. Technology will be the enabler; knowledge will be the added.

For the chief executive officer

Oltman is a worldwide managing partner of integration services for Andersen Consulting.

and the chief information officer, outsourcing is a key strategy that enables them to do the following:

- Respond to the rapid internationalization of business when the rules change every week.
- Improve return on equity.
- Keep up with dramatic technological change and differentiate

"knowledge society" we have all talked about is already changing our lives. The problem is that many people are still trapped in 20th century habits and thinking. Outsourcing is a case in point.

CEOs can look at outsourcing as an isolated decision; that is, simply as a way to cut costs.

make their mark. They are under growing pressure to increase return on equity — pressure from the owners of the business, shareholders, institutional investors and corporate raiders.

CEOs must not only make long-term plans but must also deliver measurable short-term results, or there may not be long-term success. For them, outsourcing has the great attraction of combining long- and short-term benefits.

In the short term, outsourcing will cut costs and help manage the business better. In the long term, outsourcing can add value.

With an outsourcing partner, CEOs can rely on the provider's knowledge resources and networks to help change the business and gain a competitive advantage. That is 21st century thinking.

New definitions

Outsourcing today is a lot more than just "facilities management" or MIPS factories that are long on raw computer horsepower but short on applied knowledge. It's even more than systems management, which includes software maintenance and renewal and operation of business functions supported by distributed technology as well as facilities management.

Facilities management focuses on the back room, on managing day-to-day operations of a client's network or computer room. It seeks to keep costs



Anthony S. Scharf

their company from the competition.

Answer the growing shortage of information technology and business systems professionals.

The future is now

Management guru Peter Drucker says that the 20th century is over and that the 21st century is already here. The

They can look at it as a temporary fix while they solve some larger problem, such as a shift in market demand or downsizing of the firm. But that is 20th century thinking. The 21st century view must be based on a broader view of our world.

In today's volatile corporate environment, typical CEOs have probably 36 months in which to

- Days of 'MIPS factories' are numbered
- Globalization redefines demands
- The next century has already begun

down through economies of scale. Systems management builds on that.

Today, outsourcing focuses on developing an operations strategy that will create market advantage, such as closely integrating an enterprise with its customers and suppliers. It then brings together information technology and industry knowledge to create business processes to deliver on the strategy.

The 21st century CEOs of today are beginning to look at outsourcing as the means for achieving total business integration. To win in the new international playing field, they need to embed business, industry knowledge and information technology into the company's global operations.

Relatively speaking, response to global requirements is not the lowest priority of the 20th century. In the 21st century, global response must be at least as rapid as the response to domestic requirements. CEOs must move quickly in international markets — and they need competitive initiative and energy people to do it.

Maximize the positive

Unfortunately, there is a growing shortage of technical specialists and business systems professionals. Outsourcing allows CEOs to leverage the skills and knowledge available. Drawbacks say that more and more people working in and for corporations will actually be on the payroll of independent companies. That can be a very positive development.

Katherine Hudson, an IS executive at Eastman Kodak Co. — a company that receives much credit for its leadership in pursuing outsourcing and realizing its business, technology and personnel benefits — explains: "If you're really a good technical person — an expert in application development, for instance — do you think you'll have your best career at a photography company or at a computer company?"

The answer, of course, is that the outsourcer can offer white-collar career paths and opportunities for information technology professionals.

Trends driving outsourcing

Sharpening of information technology specialists & business systems professionals

Disaggregation of capital markets



High volume and velocity of financial transactions requiring flexible response

Globalization intensifying international competition

The U.S. outsourcing market is the most competitive in the world. With MIPS and communications costs falling, incremental cost differences between major players will be negligible.

IBM supersedes previous all forms of outsourcing. Besides increased margins, it is seeking to protect its installed base from the Japanese, who have entered the U.S. technology market through U.S. outsourcing firms. IBM says it believes that this is the nature of the Electronic Data Systems/Hitachi relationship.

Other hardware vendors are likely to focus more on outsourcing selected functions such as network services. However, they also will be eager to expand with new partners into new and growing markets.

All this points to an inevitable shakeout in the outsourcing industry over the next 24 months. This shakeout is being driven by the enormous range of demands being placed on the players in the outsourcing market.

Some major outsourcing companies will choose to focus on selected niches or serve as subcontractors. Others will form industry alliances with even larger players. Overall, the total number of world-class, value-added outsourcing will probably shrink to a handful: maybe a Japanese firm, maybe a European firm, maybe AT&T.

In a shakeout market like this, turning over responsibility for an information technology function to anything less than a world-class firm — no matter what the rationale — could mean loss of competitive edge and even worse, the business.

Outsourcers must have industry alliances that bring specialized technology and technical expertise into deals. They must continually invest in targeted research and development with their technology partners to satisfy customers' solution requirements. The best will organize their resources to package and deliver solutions along vertical market lines.

Let's talk about the various ways that 21st century CEOs can outsource.

They can outsource the entire information technology function — technology-based business operations, software re-engineering and renewal, maintenance, systems operations, network services, systems building and integration, education and training, to name just the major elements. Or they can just outsource some of them.

They can outsource for short or long terms, by business unit or geography, by contract or asset sale.

Value-added outsourcing can help CEOs use information technology to distinguish their products and services from the competition.

However, the critical need is for nimbleness and added value — with the aim of

beating the competition globally. Many companies have significant investments in software coded in the 1960s and 1970s — software cannot be easily transferred to meet the business needs of the 1990s.

The challenge of outsourcers today — especially those with huge investments in manufacturing or MIPS factories based on old technology infrastructures — is to deliver the flexibility and range of options required for success.

By the mid-1990s, more than 50% of major commercial and government enterprises practicing in multinational environments will be engaged in some degree of outsourcing. Asia, the Pacific Rim and Japan may be the fastest growing markets in the '90s. For example, Fuji Bank has apparently set aside \$2 billion to fund integration projects — and that's just one bank.

Why outsource?

The following are the most common reasons a CEO may be interested in outsourcing:

- To gain leverage on costs and assets.

Checking out partners

The chief executive officer and chief information officer shopping for outsourcing must be able to leverage the outsourcing firm investment in research and development to further their own objectives.

Evaluating the potential of outsourcing requires answers to some key questions:

- Does outsourcing fit the company's overall objectives? Does it make sense when balanced against the strategic alternatives?

- Will the outsourcing agreement improve the company's chances of success against the competition?

- Do the outsourcing partner's objectives fit into the company's strategy?

- Does the outsourcing partner have industry expertise?

- Does the partner have an international perspective — with skills and facilities in the relevant international marketplaces?

- Does the outsourcing partner have staying power and a long-term market commitment?

- Will the outsourcing provide flexibility in entering and exiting the business arrangement?

- Is the partner free from overinvestments in manufacturing old processing technology and systems processes? In other words, will he have the flexibility to provide solutions with the technology necessary to provide competitive advantage in the 21st century?

- Does the partner have the objectivity to draw on the full range of options available?

- Does the value-added outsourcing have the necessary organizational resources — facilities, people, third-party alliances and R&D? Are they backed by a cultural glue and a common methodology? Does the outsourcing have the facilities for marketing, demonstration, development and production?

- Do the outsourcing partners have a track record of managing delivery risk? Does the firm have the credentials that will help leverage the credit risk?

JOHN R. OLTMAN

reuse its software and leverage its information technology professionally.

Example: To protect its leadership position, a major capital markets company needed to focus all its resources on building new systems for the 21st century. It also needed to downsize because of the current situation on Wall Street. The company outsourced systems maintenance and renewal, along with the related professionals.

Fourth — and perhaps most frequent — a company needs to maintain and operate existing systems while implementing a new system to provide a strategic business advantage.

Example: To remain the premier property title insurance company in the U.S., a major title and trust company had to provide superior customer service, control claim volume and improve productivity. Reducing costs was not an objective.

To achieve these goals, the company outsourced the information technology function to integrate business processes through technology. After renewing the organization's information technology and professional expertise, operational control was gradually returned to the company, which continued to outsource non-core functions.

Example: Another example of this scenario is a large consumer products manufacturer that was in a major transition to a distributed network and a different vendor's hardware, including new information management hardware. It outsourced computer operations, systems software maintenance and telecommunications support while continually assessing its information systems needs in order to ensure current and future business objectives.

Fifth, a company needs to capture the market value of existing assets.

Example: A major consumer industry corporation's systems, software and skilled professionals were assets that have market value beyond their value to the corporation and can be resold.

The goal of this deal is to acquire those assets, reduce operating costs and improve the company's competitive position.

Sixth, a company may want a value-added outsourcing company to enter an information and technology-intensive business.

Example: A bank wants to enter a new business critical to its long-term strategy. During the initial years of the contract, it became a partner with an outsourcing firm to invest cash and/or services such as industry knowledge, technology skills and materials.

Many of these deals are created so that the outsourcing partner will have a stake in the success of the relationship — and

in the rewards. This shared payoff is a tremendous incentive to achieve superior performance on the part of both partners.

Give away the shop?

In outsourcing, however, many CEOs are concerned about control—or lack thereof. They ask: "Why go outside to get these services? Why give up any part of the IS function? Why not stay in-house?"

After all, if we really believe—as Drucker says—that information is the ultimate weapon, then why disarm that weapon? Why turn over such a key competitive asset completely to a third party?

The answer to these questions is that a CEO must retain control of the value of the organization's information- and business-system support processes.

The real question for a CEO,

measured on his ability to affect the bottom line. And he will find himself at the center of the business strategy, an indispensable part of the executive suite. One possible role is to serve as general contractor directing the outsourcing. Another is to serve as CEO of the partnership with the outsourcing firm selected to provide the value-added outsourcing services.

The bottom-line question is not whether the demand for outsourcing will grow; it certainly will. CEOs facing changing market demands, rapidly emerging technologies and a growing shortage of information professionals are going to have to outsource.

The real question is, how will the organization outsource? And with which outsourcer?

Outsourcers that survive and succeed in this 21st century environment will be the ones that help you not only cut costs but also add value. They will be the ones that come up with timely, flexible solutions with objectivity. They will be the ones that have good track records of fulfilling their promises. They will be the ones that can attract, develop, motivate and deploy the top

professionals and that can leverage third-party alliances to implement their goals. They will be the ones that seek growth and market share, not just short-term profits.

MIPS factories were fine for the 20th century, but firms must now combine raw computing power with a network of "knowledge factories" that are indispensable to the 21st century. *

Get It All Out Of Your System.

Outsourcing pipeline

Often seen as a single action, "outsourcing" actually opens a range of activities

Business integration

Operational strategy

Systems integration

Process design

Systems building

Education and training

Systems management

Business operations

Facilities management

Software renewal and maintenance

Systems operations

Network services

Source: Software Consulting
CIV Client Share Index

therefore, is this: "To what extent and in what form do I outsource so that I can achieve the mission of the business enterprise?"

Looking at the picture

CEOs have two options: First, the organization can act as the general contractor (or outsourcer) and manage the outsourcing of some or all of the specific functions. In the second option, they can form a partnership with a value-added outsourcer and turn over responsibility for the information technology function. In this way, both companies have "skin in the game." In either case, the CIO is in a key position. He will be



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COMPUTER INDUSTRY

NATIONAL BRIEFS

Tit for tat

The U.S. Department of Commerce has announced that it will remove export licensing requirements for shipments to most Western-aligned countries of hard disk drives of up to 45M bytes. The action is based on a finding that these drives come in from foreign sources without restrictions.

Net equity

Its maiden product might sound more like a breakfast cereal than a software package that ties Unix users into personal computer local-area networks, but Atlantis Corp. is betting on Coconet to take it to the big time. So is flamboyant computer industry entrepreneur Ross Perot, whose investment outfit, The Perot Group, also made a multimillion dollar equity investment last month in the 1-year-old corporation, which is based in Boca Raton, Fla.

Teamwork

No, you did not pick up the sports pages by mistake: It is just that sports figures are scoring in the technology industry this month. Former Chicago running back Gale Sayers, now president of N.Y.-based Crest Computer Supply, was elected a Boys Clubs of America national trustee, while former baseball commissioner Peter Ueberroth was nominated to the board of disk-drive player Conner Peripherals, Inc.

Guaranteed disks

With market researchers lauding disk arrays as likely to have a dramatic effect on storage technology over the next decade, Tandem Computers, Inc. has moved to ensure its own supply. The fault-tolerant computer vendor last week acquired disk array maker Array Technology Corp. for an undisclosed price. Array will operate as a Tandem subsidiary, retaining both its Boulder, Colo., headquarters and its current president.

The firm with the most toys wins

Goal Systems is steadily acquiring its way into a stable, solidified customer base

BY ELLIS BOOKER
CN STAFF

So far this year, Goal Systems International, Inc. in Columbus, Ohio, has logged three acquisitions in as many months, announced its first Japanese distributorship and reported fiscal 1989 earnings up 30%. With six acquisitions in the past 18 months, the 15-year-old software company is reviewing itself as a force in markets where it used to be a mere factor.

That goal — and the firm's acquisition-driven road to achieving it — are turning a respected but little-known sleeper into a contender, according to analysts. Both have been crafted under the aegis of David C. Wetmore, who joined the firm in 1968 after 17 years as a partner at Peat, Marwick, Main & Co. — the firm that audits Goal.

Conventional wisdom has it that Goal Chairman and Chief Executive Officer James A. Eberhardt — who became the company's first full-time employee a year after its founding — brought Wetmore on board to move the firm beyond the \$50 million mark.

An accounting firm might be seen as an unorthodox pond of choice for a company casting about for a forceful leader. Not falling prey to that prejudice, said James Mendelson, an analyst at Morgan Stanley Group, Inc., was a smart step for Goal.

"We've all read our share of articles poking fun at accountants," Mendelson said, "but Wetmore's a pretty aggressive guy. There's a lot of ambition

Up and Coming: Goal Systems

"We'd like to be the 'preferred' acquirer," says Wetmore in the wake of six buys in 18 months

- Location: Columbus, Ohio
- Incorporated: 1975
- President: David C. Wetmore
- Employees: 500
- Product line: Data center management and computer-based training software

at Goal right now to really become a power in its sector."

Goal's business divides cleanly into two operations. The Data Center Management Division markets automated data center management products for IBM and compatible mainframes, including the flagship Jobtrac performance monitoring and management tool system for MVS. This group accounted for 64% of Goal's business last year.

The Information Technology Division

is a major player in the computer-based training, computer-based reference and associated courseware systems, according to analysts. Its flagship products are Phoenix, a mainframe-based authoring and presentation system that now extends to IBM midrange and microcomputers, and Preference, a mainframe-based text reference tool.

Wetmore's stewardship seems to be working. Net revenue of \$52.2 million for the year ending Jan. 31, 1989 — up 29% from fiscal 1988 — marked Goal's 13th consecutive year of growth. Net earnings increased 34% to \$7.9 million. Last May, Goal went public.

Behind these numbers is Goal's aggressive acquisition campaign, launched soon after the initial public offering.

While Goal has targeted increasing larger firms, only one of the six it has purchased so far — Essential Software, acquired in February — reported annual revenue topping \$10 million. A year after buying Essential, Goal paid \$6.9 million in cash for Tower Systems International, a Costa Mesa, Calif., tape and disk management systems vendor. Then last month, it paid \$5.4 million in notes for Database Utility Group, Inc., a Seattle performance monitor developer best known for its Insight/DB2 product.

Both Essential and Tower added to Goal's product stable, complementing its existing line. Equally important, however, they gave Goal "a West Coast presence ... it was part of

Continued on page 88

Lotus/Novell merger polarizes investors

BY PATRICIA KEEFE
CN STAFF

The engagement between Novell, Inc. and Lotus Development Corp. got off to a rocky start after angry investors torpedoed Novell's stock in protest, driving the price per share down almost 10%, or a little more than \$4, following the April 6th merger announcement. By the following Tuesday the stock had rebounded slightly, but the message was clear.

Analysts who watched Novell's normally robust stock rollercoaster said that large Novell shareholders are unhappy with their proposed return on investment. Under the terms of the agreement, Lotus will issue 41 million shares, and Novell shareholders will get 1.19 Lotus shares for each share they tender.

Unless Novell Chairman Raymond Noorda — who stands to become Lotus' biggest single shareholder as a result of this deal — can assure his current firm's shareholders that their

investment is in good hands, the July nuptials may be canceled.

In a press conference held last week to discuss the bondholder merger, Noorda admitted he faces a lot of fence-mending before he can expect to walk down the aisle with Lotus.

Splitting duties

Noorda did talk about asking Lotus Chairman Jim Mani to assume the duties of company chairman, because "the chairman has to spend a lot of time with the investors," and said he would rather involve himself with sales and operations of the new firm.

However, as there is little overlap between the two investor camps, Noorda will have to put aside his doubts and plunge into investor briefings.

Part of the problem, said John C. Maxwell III, an analyst at Dillon Read & Co., is that Novell investors are not convinced the combined entity will have the same growth characteristics that the high-flying Novell has had. "This is something that Novell and Lotus will have to address," he said.

This is worrisome for speculators who bought into Novell with the expectation of a killing when the company was sold. "It's reasonable to note that at first blush, Novell investors are negative," said David Beyer, an analyst at Montgomery Securities. He said the duo is promising growth equal to or greater than that of Novell alone.

It will also help if Noorda stays on and does not retire, an action he has steadfastly denied.

Analysts also cited the advantages for Novell, which stands to gain enormous market clout from its merger with Lotus, as well as access to the Lotus installed base and the spreadsheet maker's "sophisticated corporate account structure."

On the Lotus end, Maxwell said there was a "likelihood that the merger could be disruptive, on the basis of size, integration, different corporate cultures and the fact that Lotus has not really done this before."

"It's not a done deal," Beyer said. *West Coast Correspondent Jim Mack contributed to this story.*

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Most companies have computer systems that were acquired on a departmental level, often from different vendors. This practice has left islands of information—workgroups divided by function, operating system, and communications protocols—barriers more formidable than any wall.

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LAN resellers await impact of Lotus/Novell deal

BY MAURA J. HARRINGTON
OF STAFF

While many local-area network resellers agree that Lotus Development Corp.'s recent move to acquire LAN vendor Novell, Inc. was at least in part a competitive strike at Microsoft Corp., uncertainty as to how the deal will affect their own business relationships with Novell is apparent.

"My overall reaction is that I'm cautious," said Leo Spiegel, executive vice-president of sales and marketing for LAN Systems, Inc., a Manhattan-based systems integrator. "In my opinion, Lotus

has never been very close with its dealers, so you have to wonder if that will hinder our relationship with Novell. Also, we're cautious because a lot of [LAN Systems'] success working with Novell has been in working closely with the technical people there, and we are wondering if that is going to change."

"I don't know how this deal will impact resellers, but it will create a lot of uncertainty in the marketplace," said Paul Donohue, president of Elmwood, N.Y.-based PC Technical Services, Inc. He added that among the uncertainties is the possibility of new opportunities for value-added resellers.

"I don't suspect that in the short term, this will have any impact on dealers or the on the dealer channel, but in the long term, there should be some positive impact... because it strengthens [Novell's] product, and it puts Lotus clearly as the No. 1 competitor of Microsoft," said Dave Vinzant, chairman of the Local-Area Network Dealers Association.

While several resellers close to Novell said they had "smelled some kind of deal for Novell" brewing, none of those interviewed knew the deal would be with Lotus.

Reseller John Tookatos, a partner at Professional Systems Group in Racine,

Wis., said he had expected IBM to be Novell's buyer. The Lotus/Novell agreement, Tookatos said, is an attempt by both companies to compete better with such corporate giants as IBM, Microsoft Corp., Hewlett-Packard Co. and other companies.

"Realistically, I look at [the merger] as almost a desperate move for both companies to stay alive," Tookatos said.

"Their view might be that they just want to stay alive, but I'm hoping the case is that the end users are driving the market toward this sort of consolidation," Spiegel said.

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INTERNATIONAL BRIEFS

Mixed signals

The West German antitrust board earlier this month gave a widely expected provisional green light to the merger between electronics giant Siemens AG and entrepreneurial computer vendor Nixdorf Computer AG, announced this past winter. However, it appears that a likely part of the price of a successful close will be a partial divestiture in the communications engineering area — a niche in which Siemens and Nixdorf command a combined 40% market share. Nixdorf is reportedly engaged in discussions with West Germany-based Mannesmann, earlier seen as a potential acquirer, and Canada-based Northern Telecom Ltd.

Big little market

According to a report issued recently by Aquarius Co., a Tokyo-based market research firm, Japan's market for notebook-size computers is expected to grow 50% annual growth over the next several years. Such great expectations are based partly on the growing use of the new machines by the sales forces of industries such as insurance, cosmetics and airlines, the report said.

Bits of summer

A recently inked joint venture between Canadian mail-order microcomputer supply house Microbits and London-based Electrocomponents PLC will result in the summer launch of Misco Canada, Inc., the firms said recently. According to the plan, Misco Canada will be created as an Electrocomponents subsidiary and merged with Microbits, with a significant interest in the merged firm going to Microbits founder and President Maben G. Smith.

MS-DOSKI

The latest fruits of the cooperative labors of Microsoft Corp. and its Soviet joint venture, Dialogue, is a Russian-language version of MS-DOS Version 4.01 — the first Microsoft product tailored specifically for the Soviet market.

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POINT

James Daly

A shameful case of death by disinterest

■ It's been a few weeks since the U.S. Memories chip-making consortium venture hit the ground with a sickening thud, and its corpse seems about ready to disappear beneath the sands of time.

Before it's swallowed up, however, let me roll it over with a stick once more, lest we forget the uncomfortable discrepancies in its demise regarding and how much U.S. manufacturers have to learn from the Japanese competitors they so admire and fear.

For half a year, U.S. Memories Chief Executive Officer Sanford Kane lobbied furiously to bring together domestic chip makers and computer companies in what would have been an extraordinary attempt to end U.S. dependency on Japan for dynamic random-access memory (DRAM) chips. The project was envisioned as a steady source of chips that wouldn't be hobbled by the short-term savings pressures that burden most U.S. companies.

Fat chance. In one of the crueler ironies in recent recollection, some of the most forward-thinking members of the industry suddenly seemed like they needed to be fit for glasses.

After seven original investors came through — including DEC and IBM — nothing happened. Nothing. The pressing urgency of the DRAM afterglow of two years ago seemed but a bad dream. So a bitter Kane threw in the towel, disgusted by yelling into the wind at an industry unwilling to make the venture viable through a simple commitment to buy some of U.S. Memories' products. Kane even added the rider that U.S. Memories' chips needed only be bought if they met the manufacturer's technical and financial specifications. No arms were twisted. Still, not a peep.

Thus, the cooperative's death by disinterest wrapped up a short and myopic chapter in which innovators like Tandem, Apple, Sun Microsystems, NCR and Compaq let the plenty of today cloud their perception of tomorrow.

COUNTER
POINT

Peter Bartolick

Goodbye to a recipe for stagnation

■ In the few weeks since the demise of U.S. Memories, the U.S. semiconductor industry has seemed more alive than ever, revealing innovative technology initiatives at a rapid pace.

Unsubscribed from nurturing the dinosaur that semiconductor adventure most likely would have become, memory chip manufacturers seem to have regained their senses and are facing the foreign challenge in the good old American tradition — by getting down in the pits and turning the rules of the game to their own advantage.

The U.S. semiconductor industry did not rise to prominence through its members ganging up together in the juvenile game of "keep-away." Chip makers arrived on the doorstep of the 1990s slugging it out bare-knuckled with one another — and with anyone else who wanted to jump in and play a game where there will always be losers. Perhaps it is true in Japan that the technological giants are so closely linked that they can quietly hatch master strategies to ensure mutual protection at the expense of the foreign devil.

But that won't work in the U.S. What has worked in the States is the willingness and ability to accommodate individuals and ideas from overseas. Intel's deal with Japan's NMB Semiconductor Co. may be one of the shrew-

dest, most sensible marketing and production strategies run up the flagpole since IBM adopted personal computer technology.

This is, after all, a global economy that we are dealing with today. Just as the dollar no longer rises and falls at the whim of the Federal Reserve, technology is increasingly an international web of shifting alliances.

Intel snuck into the backyard playground of the Hitachi and Fujitsu and found sitting on the sidelines a Japanese partner who wasn't allowed into the big boys' ball game. So while others bemoaned U.S. efforts to keep the Japanese giants at bay, Intel acted and was able to sign up its own memory chip supplier — in Japan, no less.

And Intel is not alone: Texas Instruments has signed a deal with Kobe Steel Ltd. to build a chip fabrication plant in Japan to manufacture products for the Japanese market; IBM has signed a deal with Siemens to cooperate in the development of 64M-bit dynamic random-access memory chips.

Deal-making is how the game must be played on the international scene these days. But deals need to be struck between companies that can forge strategic alliances based on calculated risks and the willingness to risk defeat in exchange for the promise of success.

Deals made between companies intent on spreading out the risks evenly among all players are a recipe for stagnation.

U.S. Memories was a feeble effort. If it had gotten off the ground, most likely it would have established watered-down strategies and goals designed not to step boldly into the future but rather to timidly level a playing field and ensure that none of its members gained an advantage at the expense of others.

Well, the playing fields of industry are not level; they are rough, and inevitably some competitors take a tumble. That's what ensures that the best strategies and products achieve prominence while those that can't keep up huddle to the sidelines.

The deals that Intel and others have forged with foreign partners are cause for celebration, not for mourning. Nothing good could be served by U.S. industry hunkering down and looking inward while industry in Europe and Asia is looking outward.

Yes, indeed, U.S. Memories is nothing but a footnote. As such, it may keep alive memories of how U.S. industry came to be preeminent in the first place.

Bartolick is Computerworld's news editor.

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Goal

FROM PAGE 81

the strategy," Wetmore said matter-of-factly.

The largest purchase to date has been data center automation vendor MVS Software, Inc., a \$7 million Los Angeles concern bought for \$27.5 million in stock. Why did Goal pay this much for a firm that posted a little more than \$7 million in annual revenues?

"If you're going to buy a Rolls-Royce, you have to pay

Rolls-Royce prices," Wetmore said.

Unlike some determined acquirers, Goal is committed to a friendly acquisition strategy and has retained a number of executives or established developer arrangements with executives from Essential, Tower and MVS.

In addition, Goal has for years provided its software developers with a unique incentive plan that rewards them in the form of profits of a program under a consortium system. "We call it 'Sending your kid to college' when you go to Goal," Wetmore quipped.

"We'd like to be known as the preferred acquirer."

Nevertheless, Wetmore said, each of the friendly acquisitions came only after a long courtship. MVS, for example, had been on the record as being committed to remaining independent.

While its recent spate of acquisitions have led some to observe that Goal wants to "move up" from VM and VSE to the MVS, for example, had been on the record as being committed to remaining independent.

the MVS world.

"Last year, without the acquisitions, 50% of our data center sales were MVS shops, and all the information systems sales were for MVS," he said.

Goal made its acquisitions for its information technology division have been much smaller. In October 1988, it paid slightly more than \$1 million for Bennett Software, a Houston start-up with a job scheduling product; a few months later, in February 1989, Goal took over Electronic Learning, a Dallas-based consultancy.

Several analysts said they

think next year will be a boom time for Goal. "Once the recent acquisitions have been integrated into the company, I think you'll see sales up considerably over this year," said Kevin P. McQuinn, an analyst with The Ohio Company in Columbus, Ohio.

If so, said Mendelson, who also said he expects Goal to hit hard in the 1991-92 time frame, the perception of Goal should catch up with its long history. "It's a real irony," he said. "It's still seen as a pretty small company — and it isn't."



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COMPUTER CAREERS

Out of the fire and into the fryer

Management consulting offers IS pros big bucks, if they can take the heat

BY DAVID A. LUDLUM
OF STAFF

A position with a high-profile management consulting firm isn't just a job—it's a lifestyle, and it's not one that everyone will find attractive. "You can't plan on doing anything [outside of work] during the week," says Leslie Ball, a principal at Index Group, Inc. in Cambridge, Mass.

However, consulting can hold attractions for information systems professionals. Most of them stand to boost their earnings with a move to the field. They may not get a bigger salary immediately, but they're likely to win bonuses they wouldn't receive working in an IS organization. Subsequently, consultants are likely to move up the pay scale faster than they would in an IS organization.

Beginners in IS management consulting with an MBA and a year or two of IS experience or similar work stand to pull down a salary in the range of \$40,000 to \$50,000. At Cresap, McCormick and Paget, recruits generally arrive with several years of consulting experience but may start at a salary of \$75,000 per year, says Joseph Cella, director for information technology consulting at the company's New

York office.

A vice-president doing IS management consulting at a major firm can earn between \$100,000 and \$300,000 per year, and a partner could take in more—up to \$500,000 for the top people.

However, watch out for stress. The hours can be long, the work demanding and the internal competition intense. Travel might be extensive at times, too, although it often comes in spurts.

Of course, the same things can be true of IS organizations, and consulting may seem more appealing than IS on some counts. While consultants are likely to travel more than IS managers, they're not needed to relocate as often, says Robert Prince, managing partner for business consulting at Andersen Consulting in Chicago. Consultants may also win promotions more quickly than IS managers simply because the business is growing so fast, Prince says.

The IS arena is the hottest growth area in management consulting, according to David Lord, managing editor of *Consultants' News* in Pitman, N.J. "It's growing so fast that I don't think anyone has a good grasp of what the size is," he says, noting that

last year, Andersen Consulting's IS practice grew by more than \$300 million, to \$1.44 billion.

IS management consultants work for different types of firms. The biggest companies, such as Andersen, offer services ranging from strategic IS planning to contract programming, facilities management, systems integration and training. Some, such as Index, concentrate on IS management. Others, such as Cresap, include IS management among a range of general management consulting services.

Consulting firms specializing in IS management have been merging with systems integrators or companies with systems integration practices. In recent years, Nolan, Norton & Co. teamed up with KPMG Peat Marwick, and Index joined with Computer Services Corp. This year, McKinsey & Co. acquired Information Consulting Group, which was started by former Andersen Consulting partners.

Some of the great demand for IS management consultants stems from cutbacks in corporate staffs. Many firms have done away with their "bench strength," Ball says. When business picks up or new projects arise, they don't have the neces-

sary reserve talent.

Demand is also driven by new technology such as relational databases and electronic imaging. Perhaps a more important factor is the effort by companies to absorb established technology such as basic office automation. A lot of medium-size companies

At Andersen Consulting, on the other hand, about 70% of new hires hold undergraduate degrees and get extensive training. Most of them, however, work in systems integration. The company tends to hire people with MBAs for strategic IS consulting. It doesn't require them

to have studied IS extensively because it can provide that education internally, Prince says.

Some firms require recruits to have prior work experience in IS, while others are content with experience in the operating areas of a company.

IS management consultants typically start as team members, then supervise a few subordinates before heading up their own projects. As they take charge of larger projects, they begin selling services.

IS people can find time spent in this kind of consulting work a tremendous learning experience and a boost to corporate IS careers, Ball says.

One consultant Ball knows is quitting to become chief information officer at a major company, earning stock options and similar perks. "Virtually everybody who leaves goes on to a position better than what he would have gotten [without the consulting experience]," Ball says.

Ludlum is a Computerworld senior writer.



CONSULTANTS MAY ALSO win promotions more quickly than IS managers simply because the business is growing so fast.

still need help in that area, Cella says.

Cost control is another driving force. One result is a demand for "re-engineering" business processes. The idea is to streamline the processes before designing systems for them.

Re-engineering calls for creativity, and the ability to solve problems is generally key for IS management consultants.

Working with clients means building relationships, which requires a knack for maintaining a friendly disposition and the ability to write and speak well. Most IS management consultants hold advanced degrees. At Cresap, for example, 95% do—half in computer science and half in business administration. The MBA holders are likely to have concentrated in IS or hold a bachelor's degree in computer science.

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The following information will help you determine the size ad you'd like to run and when you'd like to run it.

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COLUMN WIDTHS AND MINIMUM DEPTHS: Your ad can be one of seven different widths. There is a minimum depth requirement for each, width. You can also run larger ads in half-inch increments. The chart below can serve as a reference.

NUMBER OF COLUMNS	WIDTH	MINIMUM DEPTH
1 column	1-1/4"	2"
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5 columns	6-15/16"	5"
6 columns	8-3/8"	6"
7 columns	9-3/4"	7"

RATES: Your rate will depend on the size of your ad and whether you choose to run regionally or nationally. The national rate is \$14.85 per line or \$207.90 per column inch. The regional rate (Eastern, Midwestern or Western editions) is \$10.80 per line or \$151.20 per column inch. You can run your ad in any two regions for \$13.50 per line or \$189.00 per column inch.

line or \$189.00 per column inch. In all cases, you can earn volume discounts.

The minimum ad size is two column inches (1-1/4" wide by 2" deep) and costs \$415.80 if run nationally. A sample of this size appears below. You can run larger ads in half-inch increments at \$103.95 per half inch. Box numbers are available and cost \$25 per insertion (\$50 if foreign).

Programmer Analysis

This is a sample ad for Computerworld's Computer Careers section. It will help you decide what size ad you'd like to run. Remember that you can run your ad either regionally or nationally in our recruitment section and that the minimum ad size is one column (3 1/4 inches wide) by two inches deep (like this sample). This ad would cost \$455.00 in our national edition, \$200.00 in the Eastern, Midwestern, or Western editions, and \$378.00 in two regions; volume discounts apply.

SAMPLE AD SIZES AND PRICES: To assist you in planning your recruitment advertising, the following shows common ad sizes and their respective costs.

	One Region (East, Midwest or West)	Two Regions (East/West, Midwest/West)	Mathematical Editions
1 column x 2"	\$ 302.40	\$ 378.00	\$ 435.80
2 column x 2"	\$ 604.80	\$ 756.00	\$ 831.60
3 column x 3"	\$1,360.80	\$3,701.00	\$1,871.10
4 column x 5"	\$3,024.00	\$3,780.00	\$4,158.00
5 column x 7"	\$5,292.00	\$6,615.00	\$7,276.50

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MARKETPLACE

Feeling the micro squeeze

Minis can compete in data management, but not price/performance

BY BRIAN JEFFERY
WILLIAM BAKER

There was a time when the minicomputer was the tool of the information systems radical. It was the new, aggressive price/performance player.

Today, that time seems to be long gone. In the last few years, many vendors of general-purpose minicomputers have begun to look like endangered species. Their products have come under siege from workstations, minisupercomputers, servers, multi-user Unix microcomputers and other manifestations of the microprocessor revolution. Underlying this process is a broad shift in price/performance dynamics in favor of the microcomputer.

The average price of a turnkey system for insurance agencies dropped from \$350,000 in 1982 to \$140,000 in 1988, according to Delphi Information Systems, Inc. in Westlake Village, Calif., which sells such systems. By 1991, the figure should fall below \$100,000, the company says. The process has been driven by replacement of minicomputers with high-end micros — typically Unix-based multi-user systems.

Software Alliance Corp., a

Berkley, Calif., remarketer to community banks and other small financial institutions, reports that price/performance ratios for multiuser microcomputers are typically two to five times more attractive than for mini-computers. The smaller machines also bring major cost sav-

ured microcomputer systems.

These price/performance dynamics have a particularly large impact on users at small and medium-size businesses. Vendors such as NCR Corp., Unisys Corp., Altos Computer Systems and AT&T are selling substantial proportions of their high-end

Price and power

On average, the cost per MIPS is lower for workstations like IBM's RS/6000 line than for minisupercomputers like DEC VAXs.



Silver International Technology Group

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ings in such areas as reduced footprint, cooling, noise shielding and maintenance. Vendors usually set maintenance prices in proportion to hardware costs; Software Alliance finds that these charges fall from \$1,700 per month for minicomputers to \$2,000 per year for fully-config-

Unix microcomputer systems to such companies — in some cases, more than 50% of the total. The sector also accounts for the majority of Xenix sales.

The impact of the price/performance dynamics on this market is minor, however, compared with the effect on the engineer-

ing and scientific arena. Here, millions of instructions per second (MIPS) is a reasonably good indicator of performance, and the price/performance dynamics are weighted heavily against the traditional minicomputer.

This year's crop of workstations averages between \$500 and \$2,000 per MIPS — between a third and a fifth of the level for superminicomputers (see chart). Meanwhile, superminicomputers typically cost \$90,000 to \$200,000 for 5 to 30 MIPS. Five years from now, or even two years from now, it will be difficult to see how one could cost-justify a superminicomputer for anything. The whole market will go to microcomputers, in one form or another, and the whole market will go to Unix.

This hammering from the price/performance of the micro-computer has had some curious side effects. One might suspect that the greatest impact would be on mainframes, but that hasn't been the case; the market for high-end mainframes has stabilized at single-digit growth. The reason seems to be architectural. The typical IBM System/370 mainframe is geared toward database and data management applications. Most minicomputers are oriented toward general-purpose, MIPS-intensive processing and are thus more vulnerable to the speed and low cost of the multi-user microcomputer.

This same factor, incidental-

ly, seems to explain why IBM's Application System/400 has been able to buck the trend of a declining midrange market. Most AS/400 buyers are less interested in MIPS than data management, productivity in application development and other specialties of the machine's System/38 architecture.

So what we have is a polarization. Intuitively, one might expect it to be between mainframes and microcomputers, but the process is more subtle. The break is between architectures optimized for data management and the increasingly Unix-based ones geared toward intensive processing. Among the latter, on any kind of MIPS measurement, the traditional minicomputer and the superminicomputer face an uphill struggle.

Jeffery is managing director of International Technology Group in Los Altos, Calif.

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The BoCoEx index on used computers

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XT Model 089	\$725	\$800	\$600
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XT Model 339	\$1,500	\$1,800	\$1,500
PS/2 Model 50	\$2,000	\$2,200	\$1,900
PS/2 Model 60	\$2,425	\$2,600	\$2,400
Compaq Portable II	\$1,700	\$1,725	\$1,550
Portable III	\$2,300	\$2,500	\$1,900
Portable 286	\$1,700	\$2,000	\$1,700
Plus	\$750	\$950	\$675
Dashgore	\$825	\$900	\$800
Dashgore 286	\$1,415	\$1,825	\$1,300
Dashgore 386/16	\$2,500	\$2,750	\$2,475
Apple Macintosh 512	\$650	\$750	\$525
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Bids/Proposals/Real Estate

Request For Proposal

The Computer Service Center (CSC), a division of the Computer and Data Communications Services Agency (CDCSBA) of the City of New York is soliciting proposals for the purchase and maintenance of hardware, including but not limited to, an IBM 3090-800J or equivalent CPU and upgrade of an IBM 3090-800J, DASD, printers and tape storage units, and other peripheral equipment, software, including IBM operating software and other mainframe software products, physical site planning and development, including electrical, plumbing and construction work and data center performance measurement analysis.

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TRAINING

Training in the executive suite

Senior-level management needs IS training too—but in its own way

BY M. L. RUSSELL
SPECIAL TO CIO

High-level business executives should not be left out of information systems training.

Executives make critical decisions that influence the future course of their enterprise. When rendering judgments that affect IS projects, they may rely on input from vendors and internal advisers who are less than completely objective. To keep from being manipulated, the executives must possess a good understanding of IS topics to recognize when something important is left out of a conversation.

IS training organizations face a major challenge in covering the right topics at the right level of detail for these executives. The nature of the work that senior executives do calls for a fresh and creative approach to the manner in which IS organizations have traditionally conducted training.

IS training should help executives play a constructive role in

such activities as developing strategies for information management, selecting new systems, monitoring development projects, managing investments in software and devising disaster recovery plans.

The training needs will vary among organizations, but executives often need some knowledge of areas such as strategic IS planning, disaster recovery, networks, database concepts and basics of systems development, maintenance and re-engineering.

The executives should understand, for example, why the turnaround time for projects must allow for strategic analysis and recovery planning. They may need to know how business applications affect the selection of a new database; if a new personnel system requires flexible and dynamic reporting, it probably calls for a serious look at a relational database.

Executives may also need to learn about the business-orient-

ed aspects of IS such as change management, team development, cost/benefit analysis and accounting techniques.

Many IS training organizations have struggled to educate executives through programs geared toward IS professionals. Doing so raises both technical and political problems.

Training organizations must treat executives carefully. Like other students, the executives don't want to look foolish in class. This fear may be magnified in the case of a boss placed in a class with subordinates, which is increasingly likely these days as companies move toward flatter organizational structures. Executives may be afraid that they don't have the technical background to understand IS training and that somehow they will be found out.

Executive training generally calls for customized workshops delivered to small groups or conducted one-on-one.

Unfortunately, the trainers

can be as intimidated by the executives as the executives are by the training. The trainers may find it easier to relate to technicians, especially if the trainers once did technical jobs.

The person presenting the sessions should not be a subject-matter expert. An individual with polished presentation skills and a high-level understanding of the topic is much more likely to deliver the training effectively. This individual should understand that what is said in the class is strictly confidential.

Training tools

The training materials should be developed as tools for future reference rather than as student guides. They should include a glossary, a bibliography for pursuing subjects in more depth and the names and telephone numbers of relevant contacts.

Examples and illustrations are big pluses, as are pictures and graphs; most executives are used to flashy presentations.

One reason that executives shy away from training is that it often requires significant time away from their daily work. Experiment with schedules. Executives may tolerate sessions for only half a day. Some will require the training to be conducted during lunch or breakfast or after

normal working hours.

Investigate video or computer-based training (CBT). The executives can take home CBT to satisfy two needs—familiarizing executives with the use of a computer and educating them about the topic at hand.

One drawback to all these techniques is the high cost. It may be difficult to justify the expense when the efforts are regarded as training for one person. It is important to view the training in terms of its impact on some of the important decisions the executive will make. From the perspective of the IS training organization, the workshops, if conducted properly, can also be viewed as vehicles for generating greater visibility and support among management.

Follow-up is critical to the success of executive training. After the workshops are completed, continue to send executives particularly valuable articles, books and materials on topics that may interest them. This step can keep the executives informed in a rapidly changing technical world. It can also provide another means of building visibility and support for the IS training organization.

Russell is a training analyst at Russell Martin & Associates in Fishers, Ind.



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Headquartered in the Boston area, Compurex Systems is a distributor of new and reconditioned IBM and Digital equipment. With a product line that includes everything from systems and disk drives to printers and other peripherals, it has a lot to offer large end users. President Mark, "Rocky" Ostroff, along with his two partners, Christopher Pernock and Jack Malamut, face the challenge of finding everyone who has something to sell or is looking to buy. When it comes to advertising, they're on the right track.

"We need to get the Compurex name out to a broad base of prospects in a variety of industries. And we need to tell them about all of our programs — buying, selling, trading, leasing, and consignments. We believe that most people who buy/sell concentrate on the classified section. It's where they look first. For us, Computerworld's Classified Marketplace is where our message gets delivered to the largest and most diverse audience of potential customers."

"Since we founded Compurex Systems in 1986, sales have doubled each year. To maintain this momentum, it's critical for us to continue generating quality leads. Our weekly ad in Computerworld's Classified Marketplace keeps a steady stream of calls coming in — even international calls. Based on these results, our advertising in Computerworld's Classified Marketplace more than pays for itself."

"In early 1990 we'll be moving our expanding business to larger quarters — from Stoughton just up the road to Easton. But one thing won't change: our weekly advertising schedule in Computerworld's Classified Marketplace. That's where we'll stay to keep the calls coming in."

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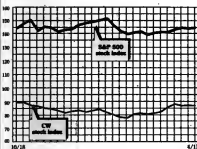
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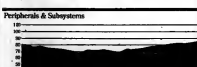
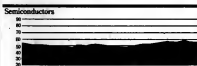
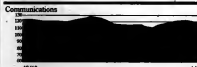
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APRIL 16 1990

STOCK TRADING INDEX



Index	Last Week	This Week
Communications	121.1	119.7
Computer Systems	81.5	79.8
Software & DP Services	121.3	119.8
Semiconductors	56.5	56.9
Peripherals & Subsystems	82.2	120.4
Leasing Companies	96.8	97.2
Composite Index	87.1	93.4
S&P 500 Index	143.9	144.2



Computerworld Stock Trading Summary

CLOSING PRICES: THURSDAY, APRIL 11, 1990

SYMBOL	NAME	PRICE	PERCENT	PERCENT	PERCENT
SYMBOL	NAME	PRICE	PERCENT	PERCENT	PERCENT

AMERICAN MICRO SYSTEMS CORP.	86 1/4	81.375	2.1	1.8
AMERICAN SOFTWARE INC.	26 1/2	24.375	0.8	0.8
AMERICAN TECH. CORP.	11 1/2	10.625	0.8	0.8
AMERICAN TECH. CORP.	11 1/2	10.625	0.8	0.8
AMERICAN TECH. CORP.	11 1/2	10.625	0.8	0.8
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AMERICAN TECH. CORP.	11 1/2	10.625	0.8	0.8
AMERICAN TECH. CORP.	11 1/2	10.625	0.8	0.8

ALPHA MICRO SYSTEMS	8 1/2	8.25	-0.4	-0.4
ALPHA MICRO SYSTEMS	8 1/2	8.25	-0.4	-0.4
ALPHA MICRO SYSTEMS	8 1/2	8.25	-0.4	-0.4
ALPHA MICRO SYSTEMS	8 1/2	8.25	-0.4	-0.4
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ALPHA MICRO SYSTEMS	8 1/2	8.25	-0.4	-0.4

AMERICAN MICRO SYSTEMS INC.	17 1/2	17.125	0.1	0.0
AMERICAN MICRO SYSTEMS INC.	17 1/2	17.125	0.1	0.0
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AMERICAN MICRO SYSTEMS INC.	17 1/2	17.125	0.1	0.0
AMERICAN MICRO SYSTEMS INC.	17 1/2	17.125	0.1	0.0

ADP MICRO SYSTEMS INC.	11 1/2	8.875	-0.3	-0.3
ADP MICRO SYSTEMS INC.	11 1/2	8.875	-0.3	-0.3
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ADP MICRO SYSTEMS INC.	11 1/2	8.875	-0.3	-0.3
ADP MICRO SYSTEMS INC.	11 1/2	8.875	-0.3	-0.3

ALLOY CORP.	2 1/2	1.375	0.0	0.0
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NEWS SHORTS

'Application for sale; one owner'

Dresel Burnham Lambert, Inc. has sold its computerized system for selling and trading junk bonds to former rival Salomon Brothers, Inc. Dresel's high-yield bond operation in Beverly Hills, Calif., developed the system, which runs on Prime Computer, Inc. hardware, over an eight-year period at a cost of \$10 million. The sale price reportedly hit seven figures. "I think we made it available at a bargain price," said Bob Thompson, a Dresel vice-president who left the firm after the sale. "It would take years to replicate what this thing does." The sale will help Dresel pay creditors in the wake of its bankruptcy filing.

Two-month reprieve for Motorola

Motorola, Inc. gained breathing room in its patent battle with Hitachi last week when a federal judge refused Hitachi's request to cancel a sale that allows Motorola to continue selling its 68030 microprocessor even though that chip's design was found to infringe on Hitachi patent patents. Another hearing is scheduled for June 18.

You're out. You're in. You're ????

The American Federation of Information Processing Society's board of directors accepted a long-range planning report last week as its road map to the future and approved a one-time offer to buy out any member wishing to withdraw for \$40,000. The meeting also proved to be a rude awakening for the International Society for Technology in Education (ISTE). The board told the group that its membership was in question, and returned ISTE's dues. When ISTE representatives were told that they could stay, but not vote, they left. The issue is expected to be resolved within 45 days.

FCC approves open net plan

In a move it called an important step in the implementation of Open Network Architecture (ONA), the Federal Communications Commission last week approved the latest ONA plans submitted by the seven major Bell operating companies. ONA is an FCC program that requires the Baby Bells to unbundling services to allow equal access to their networks for providers of enhanced services such as videotelephony and electronic mail.

Fiber-TV union nears

At Supercon '90 in Atlanta this week, fiber-optic networking and prime-time television will move little closer together. Bellcore, the research and engineering arm of the Bell operating companies, will show the transmission of broadcast TV signals from an ABC television studio in Atlanta over fiber to participating ABC affiliates in several cities. The transmission trials, which ABC has completed, are aimed at examining the cost, flexibility and quality of TV signals carried over fiber facilities. CBS begins its test later this month, and Fox, NBC and PBS will also try the technology, Bellcore said.

Bank adds EFT backup

Manufacturers Hanover Corp. last week announced a funds transfer recovery system that will allow its primary processing site to be up and running on the same day a disaster occurs. The bank holding company's Geoserve global services group contracted with Comdisco Computing Services Corp. for a dedicated recovery capability.

Belgium's PTT eyes U.S. market

The Regie des Telephones et Telepostes (RTT), Belgium's telecommunications authority, has set up U.S. operations in Westport, Conn., to provide trans-Atlantic and intra-European telecommunications services to U.S.-based companies. Marcel Cole, minister of the RTT, said the number of U.S. firms with subsidiaries in Belgium, currently more than 450, should grow considerably because Brussels is the headquarters for the European Economic Community, which is slated to become one common market in 1992.

Happy Earth Day via high-tech

BY CLINTON WILDER

CW STAFF

PALO ALTO, Calif. — To see how different Earth Day 1990 will be from the first Earth Day, one need look no further than Will Doolittle.

Doolittle was 2½ years old when the modern environmental movement began symbolically on April 22, 1970. Today, he is in charge of the 25 Apple Computer, Inc. Macintosh computers that will support the coordination of more than 3,000 nationwide Earth Day 1990 events this Sunday.

"It's hard to imagine any non-profit group in a similar situation functioning without modern technology," said Doolittle, 10, office manager at Earth Day headquarters. "You need the sophistication to make a difference for fundraising and compete for fund-

whatever you're doing."

Sunday's events will range from huge rallies in places such as New York's Central Park to small tree-planting ceremonies coordinated by local groups. Earth Day headquarters tracks all of the events with Acus, Inc. Fourth Dimension database management software on a Macintosh file server that can be accessed by any Mac in the office.

The installation of the file server to facilitate document sharing helped end "some very fierce battles for computer time," said Mark Valentine, Earth Day issues director. "It got fairly ugly. This is an exceedingly high-stress environment, and everything that reduces our stress level is a very welcome addition. The server has done that."

Some of the Macintoshes are linked by dial-up lines to Econet, a 5-year-old Teletext-based in-

ternational environmental network. Econet has provided an electronic clearinghouse for environmentalists around the world to express opinions about Earth Day.

"By having an event like this on Econet, it truly makes it a public forum," said Bill Lehand, director of the San Francisco-based network. "People have aired many points of view challenging Earth Day, asking whether it is enough or just lip service for one day. It's a tribute to the Earth Day organizers that they are on the network knowing that not everything there will be complimentary."

Doolittle acquired his skills working in the computer center at Oberlin College in Ohio, where he graduated with a minor in computer science last year. A San Diego native, he joined Earth Day office as a volunteer last summer and was subsequently hired as the staff information technology expert.

OS/2

FROM PAGE 1

1990. Specifically, the two firms said they would support the advanced chip's 32-bit fast memory model. The 32-bit memory scheme is seen by developers and users as a key component to OS/2's success as a server operating system to rival Unix.

However, Neupert said there are only so many new features that can get through the development process in time for inclusion in Version 2.0. "The goal in 1990 is to evaluate what function to add and what trade-offs we are going to have to make to add to the stable function we have today," he said.

Neupert retreated from the company's earlier statements, saying that the time frame for 32-bit implementation is not critical.

"OS/2 is not going to be a full 32-bit system in 1990 or 1991," he said. "We will be making certain pieces available, but I am willing to compete with Version 2.0 as it is. On a size and performance basis, I compete favorably with OS/2. I would be behaving differently."

While the average user may not care, corporations evaluating the operating system felt a significant delay would impede their planning process. "We had really hoped to reach a strategic networking decision by the end of 1990," said Robert Holmes, a research analyst at Southern California Oil and Gas. "It would have helped to have OS/2 LAN Manager ready to go as a 32-bit server. It doesn't hurt us in a ma-

terial sense, but it sure complicates the planning process."

Most large users said they did not really think the two companies would stick to a 1990 schedule for 32-bit implementation and were not surprised. "If they put it together in the next 18 months, that is sufficient for us," said Monte Jones, MIS director at Kentucky Fried Chicken, a large OS/2 customer. "The promise of a 32-bit system was key to getting us into OS/2. But we are enough in the toddler stage that it will take us that long to need a 32-bit architecture on our servers."

Microsoft thinks other matters are more pressing. "Memo-

ry management is critical, and 16-bit device drivers have got to happen in Version 2.0," Neupert said. "Users don't care whether something is 32-bit or 16-bit, but they want access to printers. In the example of the 386, exploiting the virtual memory mode is more important than 32-bit addressing."

"No question — the lack of device drivers is a disgrace," said Ken Whittaker, head of the advanced technology group at Software Publishing Corp. with his recent resignation. "OS/2 isn't real until there is a 32-bit programming interface. That is when the performance will really take off," he said.

CC:Mail fights hacker hit

BY MICHAEL ALEXANDER

CW STAFF

MOUNTAIN VIEW, Calif. — Reacting to a serious security breach, CC:Mail, Inc. introduced a new version of CC:Mail, its best-selling electronic mail program for local-area networks, last week.

Two weeks ago, an unidentified hacker posted a decryption utility on an electronic bulletin board operated by Hayes Microcomputer Products, Inc. that enabled users to decode and read private E-mail messages not intended for them.

The company stepped up the release date of a new version of CC:Mail that had been under development with enhanced security features, notified customers of the potential security problem and set up an 800 hotline, according to Philip Whalen, vice-

president of marketing. He estimated that there are 400,000 cc:Mail users at 7,000 to 10,000 firms.

The new release, which is being distributed at no cost to registered users, includes an encryption scheme based on variable keys and multiple levels of encryption of messages stored in a "post office" on a file server. Previous versions of the E-mail program contained a single encryption key and one security level.

None of the company's customers have uncovered security holes or suffered damaging consequences as a result of the utility, Whalen said.

The decryption utility was "quite sophisticated" and came with instructions that allowed a user to break the encryption scheme in less than 10 minutes, he said.

HP CEO Young offers an old-fashioned vision

BY J. A. SAVAGE
OF SHAW

PALO ALTO, Calif. — John Young, chief executive officer at Hewlett-Packard Co., does not have a grandiose vision of the computer industry's future. In fact, he appears to have little vision beyond the turn of the century — but, like Hanoi and Greta's trail, he seems to be dropping bits and pieces of products to tantalize users into following HP to whatever the future may hold.

Compared with other computer company CEOs, Young's views are less than sweeping. "You'd even get more out of said old IBM," says John Dean, an analyst at Solomon Brothers, Inc. in San Francisco. "Young leaves the public visionary work to the various business sectors," he said.

Unlike that of many Silicon Valley CEOs, Young's vision is "old-fashioned" — that is, the 50-year-old HP still attempts to win sales through product quality and customer respect, according to Nina Lytton, editor of

"Open Systems Advisor."

Still, Young's low-key approach wins the respect of industry watchers. While he ducks the spotlight, the "operations-oriented" Young — as Dean put it — guides HP's research and development team to sobriety force ahead of the competition. He thinks will form the office of the future.

"The trend toward the desktop is not going to abate," Young said in a recent interview with *Computerworld*. "The ultimate trend is to have personal products that have the power in them to access the information in the organization and do the operations that give you the decision support and the communications capabilities to your co-workers," Young said.

To bring that power to the desktop, Young said, HP is working on a reduced instruction set computing (RISC) machine capable of parallel computing — right on the chip. "We might have a thousand processors. There's a lot left to do with RISC architecture to really tap its full potential," Young said he thinks

RISC will last through the 1990s

and possibly beyond. Young knows that what HP has done in the past to get its

plain its New Wave computing concept — designed to the top-level computers of all makes, minis and operating systems — the reviews were tepid at best.

What HP has been good at lately is increasing revenue. It has grown steadily at 25% for the past two years, although profits have been weak. Young would not share a concrete plan for increasing the profit margin on all those sales, though he seems unwilling to cut any product lines.

"Keeping the cash register going without leaving anything behind is not one of the objectives, so there's a substantial lot of pressure on operating managers to be working on margin improvements," he said.

He cited recent plans to move staff from Cupertino, Calif., to a cheaper manufacturing environment in Roseville, Calif., as an example of



HP's Young is taking a low-key approach to the future

message out has not always worked. For instance, when the company tried last month to ex-

cutting back expenses, but he did not elaborate further.

At the same time that HP is moving discreetly toward the future, it seems it cannot shake the past. HP continues to hang onto its old products, such as the 21-year-old real-time HP Model 1000 family.

Users will not have to embrace open systems architecture to enter HP's New Wave computing. HP continues to hang onto its old products, such as the 21-year-old real-time HP Model 1000 family.

Users certainly appreciate HP's commitment to older products. While it may be a slight drag on the company's bottom line, it cultivates user loyalty in the long run, according to Lytton. "They think it's preposterous to ask people to migrate everything over to Unix next week," she said.

"We fall in love with our past glories," Young admitted. "There are a lot of tricks you use to retain the good contributions HP has made in the past."

HP/Apollo

FROM PAGE 1

average market rate. "We grew at the market rate even though we lost market share," he said.

Analysts, however, are confident that HP will avoid long-term staying power, because of its technology — if it can show a bit more style in its marketing. "A lot of analysts viewed the purchase as HP trying to get more market share, but we think the primary reason is Apollo's networking technology and PRISM [RISC] architecture," said Jim Hammons, an analyst at The Sierra Group, Inc.

However, analysts and at least some Apollo users said that despite the acquisition of glyco products, HP has yet to display the marketing savvy expressed by other running vendors.

"The workstation market is cutthroat, and HP is too slow-moving, due to its bureaucracy and conservatism," said Doug Eltoft, director of operations for Iowa Computer Aided Network

at the engineering college of the University of Iowa. Eltoft has about 150 Apollo workstations in his department.

Before the merger, Apollo had been criticized in the press for its lack of marketing skill. HP's marketing is as arcane as Apollo's [sic]. Eltoft said.

Greg Beamon, senior computer-aided design engineer at Texton Defense Systems in Wilmington, Mass., and an Apollo commercial user, said that he never even sees a marketing guy. "He said the next workstation purchased by Texton will not be an Apollo."

Key pleaded guilty. "We haven't followed up with any kind of big bang," he said, promising that this summer HP will announce a set of graphics inter-connections that may weigh in with a little glitzy factor.

If users can get beyond marketing, or the lack thereof, the combination of HP's and Apollo's products offers more synergistic gains than either would have alone.

The first step, according to

Hammons, will be parallel RISC. "PRISM has a pipeline structure that can send more than one instruction through at the same time, while most others have to put commands through sequentially," he said.

He added that internal parallelism, along with the external parallel computing technology from HP's recent agreement with Sequoia Systems, Inc., will total "a geometric increase in performance."

HP was also aware of what Apollo's Network Computing System (NCS) could do for HP and has made the technology, which allows applications to run across multivendor platforms, a key part of its New Wave computing strategy. New Wave takes most of HP's products and allows them to work with almost any vendor's computers, including running applications on whatever CPU is available, transparent to the user.

HP is positioning NCS against Network File Systems, used by Sun Microsystems, Inc. "HP can put enough muscle to take NCS

as far as it can go; Apollo simply can't have the resources," Hammons said.

One of the first concerns of industry watchers when the acquisition was announced was how HP would unify the two firms' product lines in overlapping ar-

THE workstation market is cutthroat, and HP is too slow-moving, due to its bureaucracy and its conservatism.

DOUG ELTOFT
UNIVERSITY OF IOWA

ess. Both firms offer workstation based on Motorola, Inc.'s 68030 processor, both have versions of the Unix operating system, and both have their own RISC chips and compilers.

"We're two-thirds of the way to where we'd like to be in terms of marrying products, Kay said. He added that the company is "reasonably close" to announcing a common platform, which will probably be the Motorola 68040 processor, "although, depending on availability, it might come out in a 68030 version first."

"It's just a bit that easy to merge products," said John Dean, an analyst at Solomon Brothers, Inc. in San Francisco. "It's taking longer than they would have liked because it's complex."

During this "blending" period, open systems software aimed at a market in Unix operating system has been released to users. However, some changes "have broken applications that used to work," according to David Krowitz, system administrator at the Earth Atmospheric and Planetary Science department at MIT.

Because he sees "more and more of our software not working anymore," Krowitz said he will be leaving Apollo for the Sun universe.

Users whose applications do not depend on the Domain version of Unix, such as Michael McKinnon, system administrator at Adventant America, Inc., apparently do not find the new releases a problem. He said the new software has improved networking on his heterogeneous systems.

One of the greatest differences that users have seen in corporate culture in the transition from Apollo to HP is that Apollo was small and easy to maneuver around while HP is not. "At Apollo, if you didn't like something, you could go to the person responsible and could argue with them," Eltoft said. "HP is very distributed; thus you have countless people making policy decisions, and you can't get hold of them because they don't exist."

Kay blamed most of the year's troubles on the steaks Apollo brought to the table. "We don't go out and buy a half-billion-dollar company without getting some level of indignation," he said.

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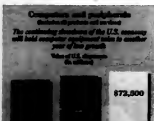
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TRENDS



Expected 1990 growth for entire computer industry
As a whole, the computer industry is growing slower than its historical rate, but it is still outperforming the overall economy, which is growing at a rate of 3%.

Percent of growth
(Based on overall dollar shipment)



Telecommunications services
Revenue for domestic telecom is expected to grow only about 4.5% this year, and future projections (not graphed) indicate that annual growth will lower around the 4.5% mark.
U.S. spending revenue for all services
(in millions)



Information services
Service industries tied to information are some of the fastest-growing today. Revenue is expected to increase 16% for information systems and a phenomenal 20% for videotex.

Information systems \$31.4

Professional services \$44.5

Videotex \$9.0

Source: U.S. Department of Commerce, Washington, D.C.
CV Chart Type Monitor

*Projected

NEXT WEEK

The business of helping firms relocate employees is intensely competitive, and Neal Lassila believes that IS plays a big part in increased market share. The vice-president of MIS at Orlando, Fla.-based Empire of America Relocation Services often tags along on sales calls to pitch the firm's on-line services. Manager's Journal profiles Lassila.



Is your business a good risk in times of disaster preparedness? Insurers are asking harder questions these days, especially when companies apply for coverage that goes beyond replacement of physical assets. For a peek at the tests and what some companies are doing to make sure their answers are adequate, turn to Product Spotlight.

INSIDE LINES

Apple palace coup foes mellowing?

Forrester Research claims to have heard of three instances of meetings between Steve Jobs and the guy who engineered a coup that kicked Jobs out of Apple and then penned a tell-all book—John Sculley. The meetings reportedly took place at Next over the course of a month. Forrester's George Colony astutely notes that for anything to happen, there will have to be a lot of pride-swallowing on both sides of the fence.

Not just-in-time?

A once-foxy communications firm may be on the verge of final dissolution; Concord Communications, one of the first (and last) commercial LAN vendors to try to make money out of Manufacturing Automation Protocol (MAP), is said to be unofficially on the block. The beginning of the end happened about a year ago when Concord Data, the modern side of the house, was bought up by Memotec. Meanwhile, Kodak is said to be on the verge of restarting its MAP activity after shoving things down in order to re-evaluate where it is going with the manufacturing network standard.

Sword in the stone

Prudential Insurance has bought 10,000 Sharp Wizards, the handheld pseudocomputers most noted for their digital diaries and notebooks. But Sharp has been pushing for recognition of its erasable programmable read-only memory (EPROM) cards, which can be customized to user specifications. Business software packages such as Lotus' 1-2-3 are also available on the EPROM cards.

Blue in the face over the U-word

It seems there's a move afoot at IBM to kill the AIX monitor for its Unix operating system. The problem IBM faces, says a source, is that AIX has connotations of being nonstandard and proprietary. Since AIX is Unix, IBMers are making a point to say the U-word and eradicate AIX from their vocabularies. You'll know it's a trend if Apple drops the AU/X name for its Unix operating system.

Ticket to the stars

Reports continue to bounce around that DEC is considering licensing the graphics library from Stardent, the firm formed by the amalgam of Stellar and Ardent. IBM recently went the licensing route for its RISC System/6000 line when it signed on with Silicon Graphics.

A gleam in the eye...

Ingres Corp. let outsiders take a peek at its new Sapphire software for developing workstation applications at last winter's Uniforum in chilly Washington, D.C. Now, the Alameda, Calif., firm is ready to take the wraps off the alleged sparkler at a Boston press conference April 23. The fourth-generation language package will allow users of a number of Unix workstations to point-and-click their way to new applications, sources close to the company say.

Reach out and touch the world

Tomorrow at the Supercom networking show, DEC will announce a new European-based telecommunications business group—the first time the firm has ever headquartered a development and marketing group overseas. Based in Valenciennes, France, the telecom group will employ more than 120 marketers and engineers worldwide. Stationing the group in France, DEC sources say, is intended to reflect the Maynard, Mass.-based company's growing interest in global marketing.

An executive at SAS Institute says he was approached at a recent trade show in Hannover, West Germany, by a man who smilingly introduced himself as the head of the East German SAS Users Group. Extending his hand, the German reportedly said proudly, "It is my job to make and distribute illegal copies of the SAS system to large installations throughout our country." We weren't there, but we can't be everywhere, and rely on you to tip us off on what we're missing by calling News Editor Pete Barstich at 800-343-6474 or sending a fax (508-475-8801) or an MCI Mail message (address: Computerworld4).

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